

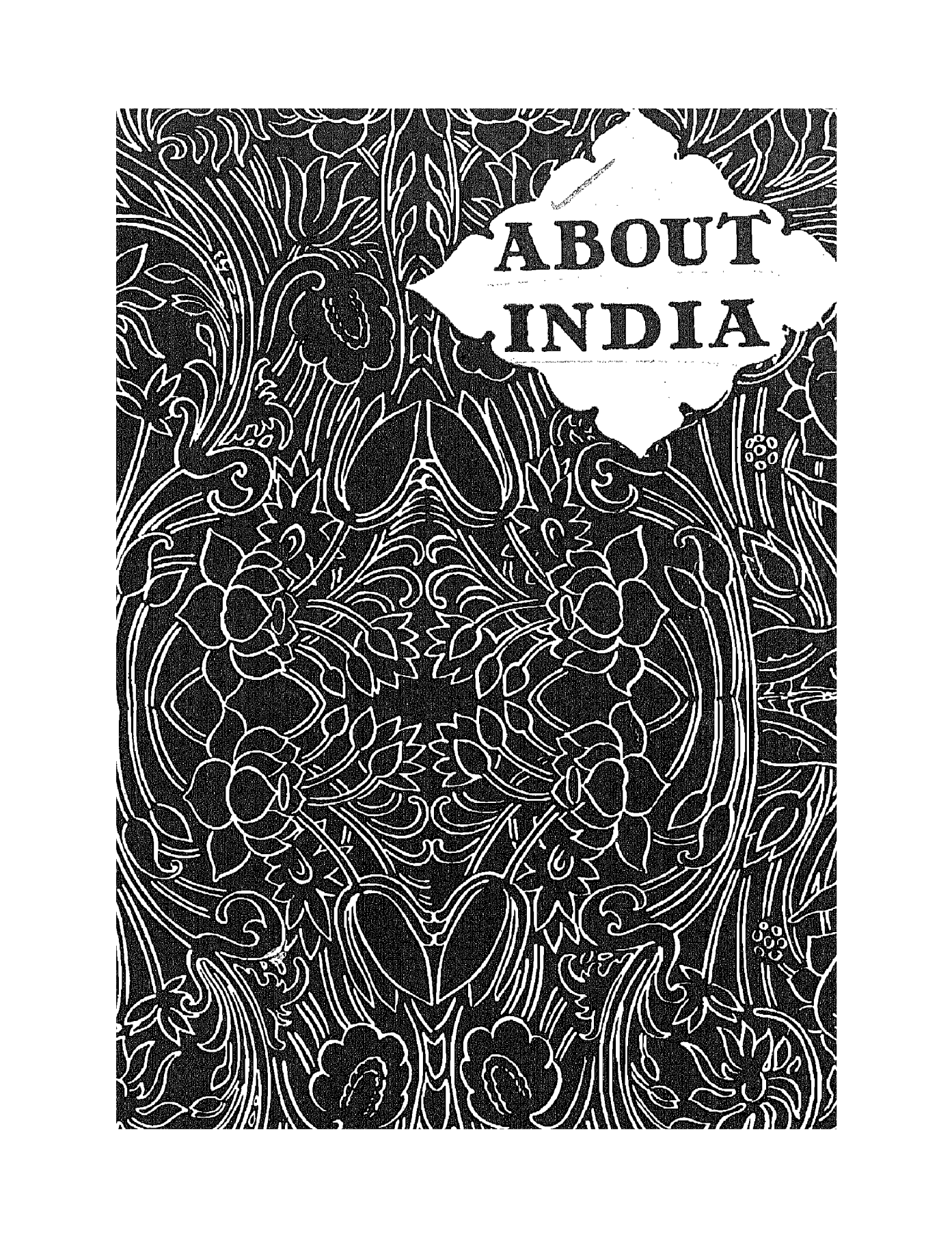


INDIAN AGRICULTURAL
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ABOUT INDIA



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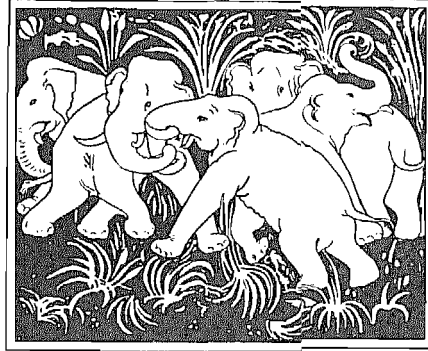
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ABOUT



INDIA

CHAPTER I

LAND AND PEOPLE

THE Indian Republic occupies an area of 1,269,640 square miles and has a population of 362 millions. India spreads over a fifteenth of the earth's circumference. From the north to the south, she measures 2,000 miles, a train journey of six days and nights from end to end. A land frontier of 8,200 miles separates India from the Asian mainland, while a coastline of 2,900 miles encircles her in the south.

Physical Features

Broadly speaking, the physical features of India are divisible into three parts: (i) the great mountain wall; (ii) the great lowland plain of

Hindustan formed by the valleys of the rivers—the Ganges and the Brahmaputra and their tributaries; and (iii) the great plateau of Peninsular India to the south of the northern plains.

The great Himalayan arc, with the Everest as the world's highest peak, extends for 1,500 miles between the gorges of the Indus on the west to the Brahmaputra on the east. At the foot of the Himalayas flows the Indus in the north through the Punjab, traversing 1,800 miles before joining the ocean. The Brahmaputra, 1,800 miles long, rises in the western Tibetan plateau of the Himalayas and waters the fertile rice fields of Assam. The



View of the Western Ghats

Indo-Gangetic plain is the most fertile part of India and most of her population live here. A major part of the west coast and central India is relatively less fertile while portions of Rajasthan are almost arid.

Between the Western and Eastern Ghats lies the Deccan plateau. It is the highest on the western edge and slopes down towards the east. A lower and more broken ridge, the Eastern Ghats, forms the eastern boundary of the plateau. The Western Ghats rise to well over 3,000 feet and the Nilgiris and the Travancore hills are the highest in the south. In the north of the plateau, separating it from the northern plains, are the mountain ranges of the Satpuras and the Vindhyas, the Mahadeo hills and the Maikal range. The Aravallis in the north-west and the Garo and Khasi hills in the north-east are two other hill ranges exerting important influence on the meteorology of the

country. The Mahanadi, the Godavari, the Krishna and the Tungabhadra are the main rivers of this region. Unlike the rivers of the north, which are fed by the melting Himalayan snows, these rivers depend only on the monsoon rains. In the summer they often become almost dry.

Climate

India has a great diversity of climatic conditions. Lying entirely to the north of the Equator, Cape Camorin, the southern-most point of the mainland, is 8° north and the northern frontier is 37° north. The Tropic of Cancer passes through the middle of India and thus the northern half lies in the temperate zone. The central meridian of 80° east passes through Madras and Jubbulpur. Thus, lying largely within the tropics and with the great Asiatic continent to the north and the vast expanse of the Indian Ocean to the south, the climate

of India belongs essentially to the tropical monsoon type.

The seasonal rhythm, however, dominates all phases of Indian life. The hot weather lasts from March to May and even to June in parts of north-west India, and the winter from October to February. The monsoon sets in June and continues till September. About 85 per cent of the rain is due to the south-west monsoon which retreats from the Punjab and adjacent regions usually in the third week of September, after which a clear cool weather sets in over that area. The fine weather conditions extend slowly eastwards and southwards.

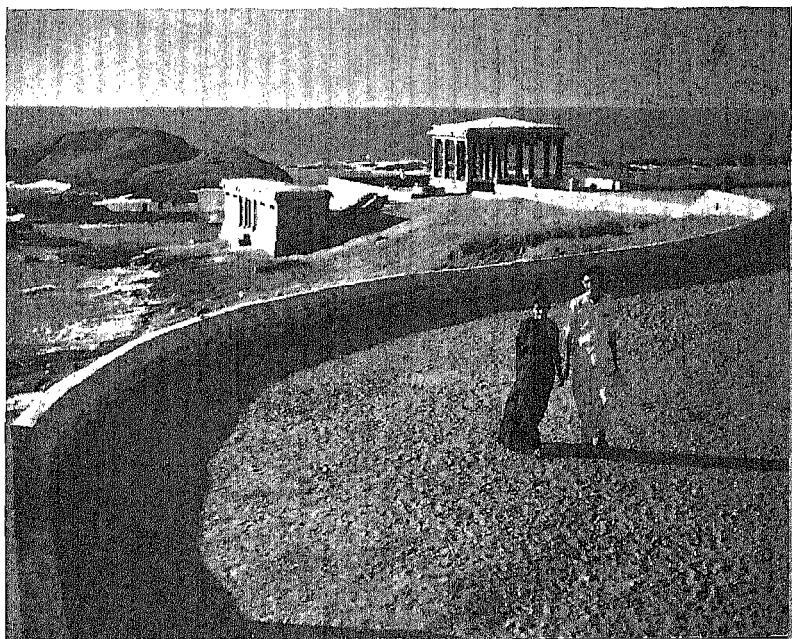
Mineral Resources

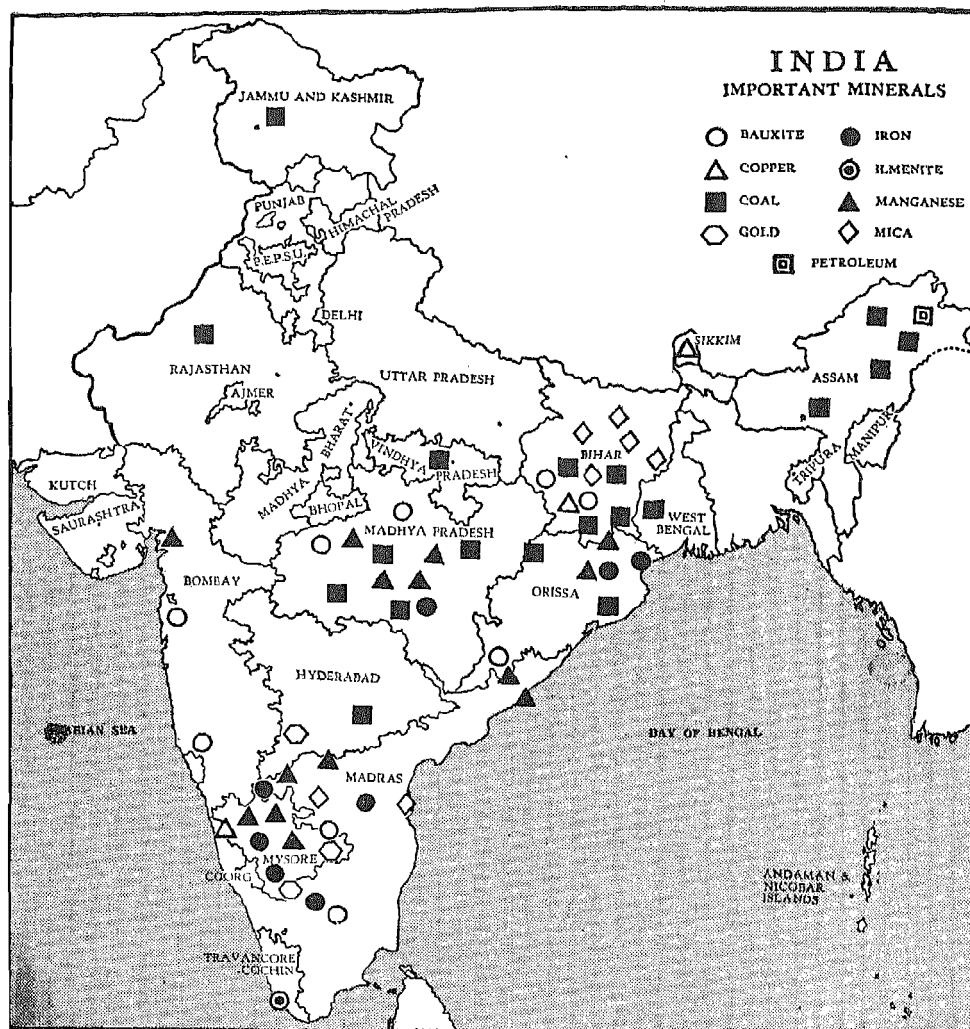
The mineral wealth of India includes large deposits of a variety of important minerals and other products necessary for industrial development. The country has enormous resources of iron ore; in fact, the deposits of high-grade ore are among the richest in the world.

Ores of good quality are found in Bihar, Orissa, Madhya Pradesh, Madras, Bombay and Mysore. The main coal producing areas in the country are in Bihar and West Bengal which contribute nearly 82 per cent of the total output. The reserves of workable coal are estimated at 20 thousand million tons, of which about 5 thousand million tons are coal of good quality.

There are also large deposits of manganese. The largest and richest of these are situated in Madhya Pradesh. Bauxite is fairly widely distributed in the country. India produces between 70 to 80 per cent of the world's output of sheet mica and the principal deposits are found in Bihar, Rajasthan and Madras. At the same time, there are large resources of titanium and thorium ores, ilmenite and monazite; and supplies of refractories, abrasives and limestone are fairly adequate. The country is, however, deficient in copper, tin, lead, zinc, nickel, cobalt and sulphur and above all in petroleum.

Cape Comorin





The diverse rock formations of India constitute a rich source of building material. The central part of the Peninsula and the mountainous districts have diverse rock strata. Rajputana has pink marble and the Deccan excellent

granite. Cream and reddish-brown sandstone is found in north India. Rich deposits of white and grey marble and limestone occur in various parts of the country. Teak, which is another important building material, abounds in

the region of the Eastern and Western Ghats. It has efficient substitutes in the ebony and the bamboo.

Agriculture

India has a total area of 811 million acres. Leaving aside 196 million acres, for which no statistics are available, the remaining 615 acres comprise 93 million acres of forests, 324 million acres of cultivated land, 98 million acres of cultivable waste and 96 million acres of land which is not available for cultivation. Thus, about 16 per cent of the total area is not available for cultivation.

Of the gross crop area of 317 million acres, foodgrains occupy about 78 per cent, commercial crops about 17 per cent, and plantation, condiments and spices about 1.1 per cent.

Both in respect of area and production, rice is the most important among the cereals. Between 1948-49 to 1951-52, the

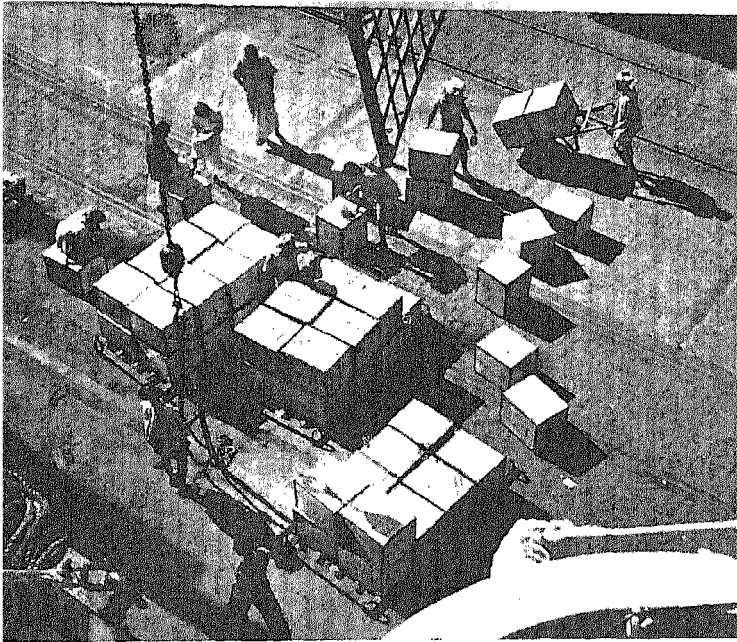
area under rice fluctuated between 72 and 76 million acres and its production between 20.27 million and 23.17 million tons. In eastern and southern India, it is the staple article of diet. India, however, does not grow sufficient rice to go round.

Next in order of importance is wheat, which is a staple food in most parts of northern India. The annual production during 1948-49 to 1950-51 was 6.1 million tons, while in 1950-51 the production reached 6.6 million tons. Millets are grown in most of the States. Its principal varieties are *bajra* and *jowar*, and together they accounted for a total production of 7.68 million tons in 1951-52. India grows 1.99 million tons of maize, 2.1 million tons of barley and 1.81 million tons of small millets*. Pulses grown throughout the country

* 1950-51

Rice field
in Srinagar





*Tea being loaded
into a ship*

amount to about 7.56 million tons annually.

During 1951-52, 4.73 million acres were devoted to the cultivation of sugarcane, the largest area under that crop anywhere in the world. In 1951-52, the production of sugar amounted to about 5.9 million tons in terms of raw sugar (*gur*). The production of crystal sugar was about 1.47 million tons in 1951-52.

Commercial crops form the bulk of the country's exports. India is an important producer of oilseeds and vegetable oils. Groundnut is grown in about 40 per cent of the total area under oilseeds and accounts for about 60 per cent of their total production. Next in importance are rape and mustard and sesamum. In 1951-52, 3.0 million tons of groundnuts, 900,000 tons of rape and mustard and 441,000 tons of sesamum were produced.

More than 50 per cent of the tea

produced in the world comes from India. Of about 600 million lb. of tea produced annually in India, more than a quarter is consumed internally and the rest exported. Tea thus brings in about Rs. 800 to 900 million of foreign exchange annually.

Among the other cash crops grown in India are tobacco, cotton and jute. India is the third largest grower of tobacco. Partition seriously affected India's supplies of cotton and jute. But since then concerted efforts have been made to increase their production. In 1950-51, production of cotton and jute amounted to 2.93 million bales and 3.3 million bales respectively. In 1951-52, the production of jute increased to 4.67 million bales. Cotton, jute, pepper and tobacco added nearly Rs. 3,000 million to the country's income from foreign trade in 1950-51.

Forests

Covering 18 per cent of the country's

area, forests are an important source of wealth. Confined mainly to the Himalayas, Vindhya and the Deccan, they are an important source of fuel, providing grazing for cattle, conserving the fertility of the soil and maintaining the water regime of the land. They also protect hilly areas against excessive soil erosion and flat land against desiccation and erosion caused by winds. Teak, *sal*, *deodar*, *chir* and *shisham* and many varieties of useful timber come from the forests. The production of timber amounts to 1.8 million tons per annum at present. Besides yielding products like lac, tanning material, gums and resins and medicinal herbs of the value of Rs. 30.3 million, they are an important source of raw material for the match-wood, ply-wood and paper industry.

The Five Year Plan provides for a total of Rs. 95.95 million for the development of forests. These schemes include also the development of communications, soil conservation, village

plantations and the improvement of private forests and waste lands.

The Forest Research Institute at Dehra Dun carries out research on forests and forest products. The pathology of fungi and the identification of commercial timbers are among the more important subjects of study. The Institute undertakes work on pencils and bamboo boards and helps in the establishment of industries for the manufacture of paper, ply-wood, resin and turpentine, santolin and several other commodities. It also provides training for forest officers and rangers.

The Indian Lac Cess Committee organizes fundamental and applied research on lac products.

Cattle

Cattle are an essential factor in India's agricultural economy. India has 150 million cattle and 43 million buffaloes and their annual contribution to the gross national income is about

The Forest Research Institute, Dehra Dun



Rs. 100 thousand million excluding the value of animal power for draught purposes.

The annual production of milk is 17.7 million tons and the per capita consumption of milk and milk-products has been estimated at 5.5 ounces a day.

The poultry population of India is about 70 million. India's 39 million sheep constitute an important source of wool and meat. On an average, 55 million lb. of wool are produced every year and 31.6 million lb. valued at Rs. 43 million are exported.

There are nine veterinary colleges in India. The Indian Veterinary Research Institute for post-graduate training is at Izatnagar and it has a sub-station at Mukteshwar. The Institute has six main research divisions and four auxiliary sections. In addition to research work, the Institute undertakes the manufacture of biological products and trains students.

The Indian Dairy Research Institute at Bangalore trains students for the Indian diploma in dairying, develops pedigree herds of *Red Sindhi*, *Gir* and *Tharpakar* cows and conducts research in problems relating to dairy industry in India. A beginning has been made with the Key Farm Scheme which seeks to establish intensive cattle improvement areas. The Five Year Plan provides for a total outlay of Rs. 147.39 million on schemes for live-stock and animal husbandry.

Fisheries

Fisheries contribute nearly Rs. 100 million to India's national income

annually. Fish, which is rich in proteins, vitamins and mineral salts, forms an important item of diet in large parts of the country. India's annual production of fish is estimated at 1 million tons, of which 70 per cent is of sea and estuarine origin and the rest comes from fresh waters. A sum of Rs. 58 million has been provided for in the Five Year Plan for the development of fisheries. The various measures proposed are calculated to increase the supply of fish from 1 million to 1.5 million tons during the five-year period.

Research on fisheries is done at the Central Inland Fisheries Research Station at Barrackpore, the Central Marine Fisheries Research Station at Mandapam, and the Deep Sea Fishing Station at Bombay.

People

India's 362 million people constitute a seventh of the human race. Her population, second only to that of China, is made up of many racial strains. Various groups entered India at one time or the other between the older palaeolithic and the historical periods. Because of topographical conditions, the races which came earlier were not annihilated by the new settlers, but with every incoming wave of conquerors they were pushed down south and eastwards. They still contribute some of the main elements to the Indian population. The hills and forests provided shelter to a large number of primitive tribes who have lived pretty well alone. This probably explains why some of the existing racial types in India retain some

primitive strains and have absorbed elements from the main divisions of mankind.

The people of India can be roughly divided into six racial groups with nine sub-types: (1) the Negrito; (2) the Proto-Australoid; (3) the Mongoloid; (4) the Mediterranean; (5) the Western Brachycephals; and (6) the Nordic.

It is thus unsafe to classify the population in the various regions of India into mutually exclusive categories. A demarcation of broad ethnic zones, where particular groups predominate, can however be attempted.

Broadly speaking, the blonde or partially blonde elements are to be found in the mountain valleys of north-western India where they are mixed with Mediterraneans and Orientals. They can be clearly distinguished from the older Palaeo-Mediterranean elements in Peninsular India. The primitive darker elements, which are found everywhere and derive their blood from other strains, especially the Palaeo-Mediterranean, constitute the lower stratum of the population. The Mongoloid who have intermingled with other groups exist

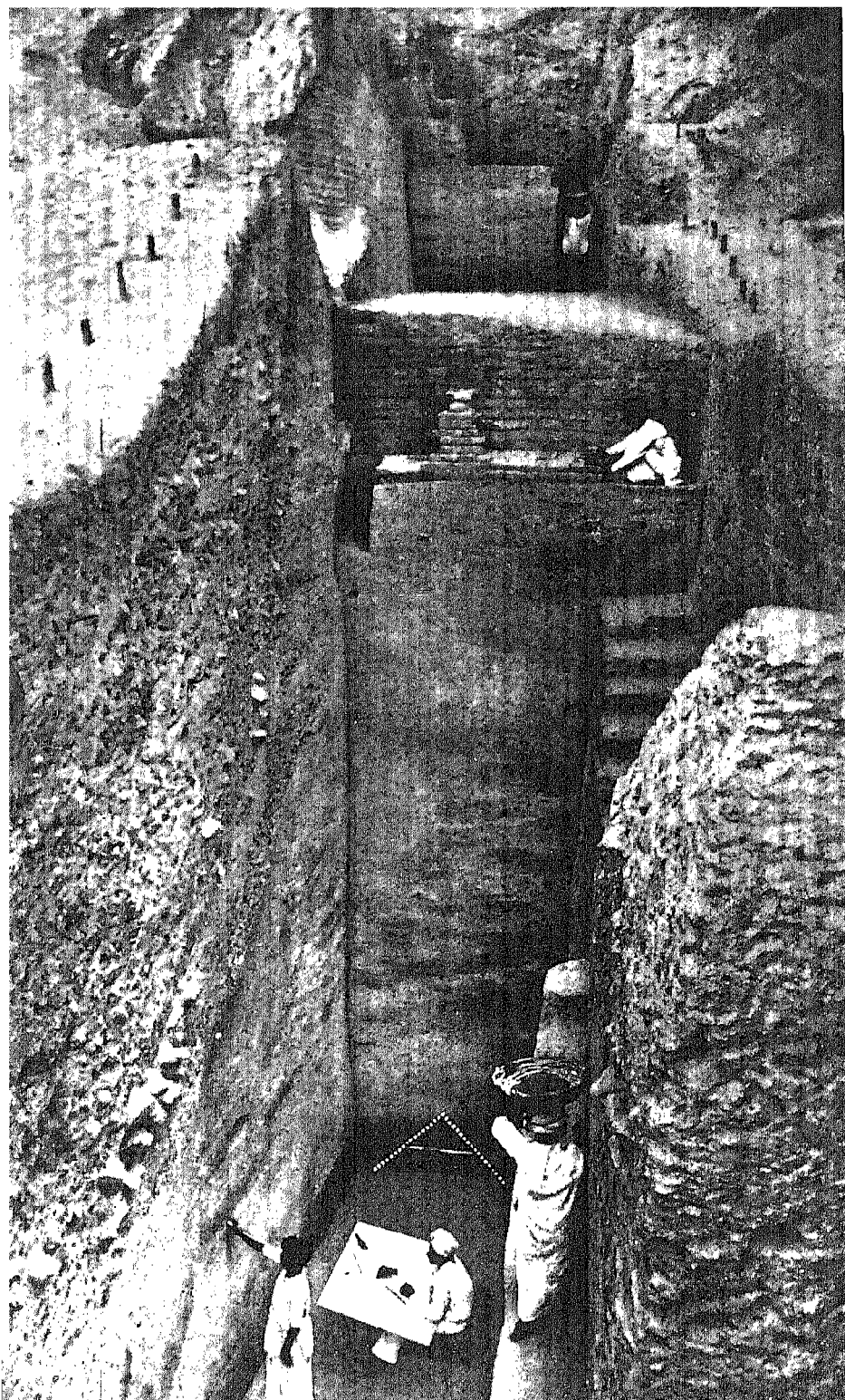
in the sub-montane regions of the north and the east.

The density of population is 296 per square mile. The birth rate for 1949 was 26.7 per mill. and the death rate 16 per mill.

About 53 million people in India live in towns, that is, three millions more than the total population of Great Britain. The percentage of urban population among the major States ranges from 3 in Assam to 24 in Bombay. Among the smaller States Delhi is the highest with 76 per cent. Ajmer has about 37 per cent of urban population.

Cities

India has 75 cities with a population of 24 million inhabitants or more. Since 1941 the number has grown and with the rapid industrialization of the country new cities are springing up and the old ones are expanding. Urban population of India has thus increased by 43.8 per cent as compared to 1941. Besides the displaced persons from Pakistan who have contributed to this increase, availability of modern amenities and education and professional facilities have also led to a steady stream of migration into the larger towns.



*Mohenjo-daro,
the seat of the
Indus Valley
Civilization,
3,000 B.C.*

CHAPTER II

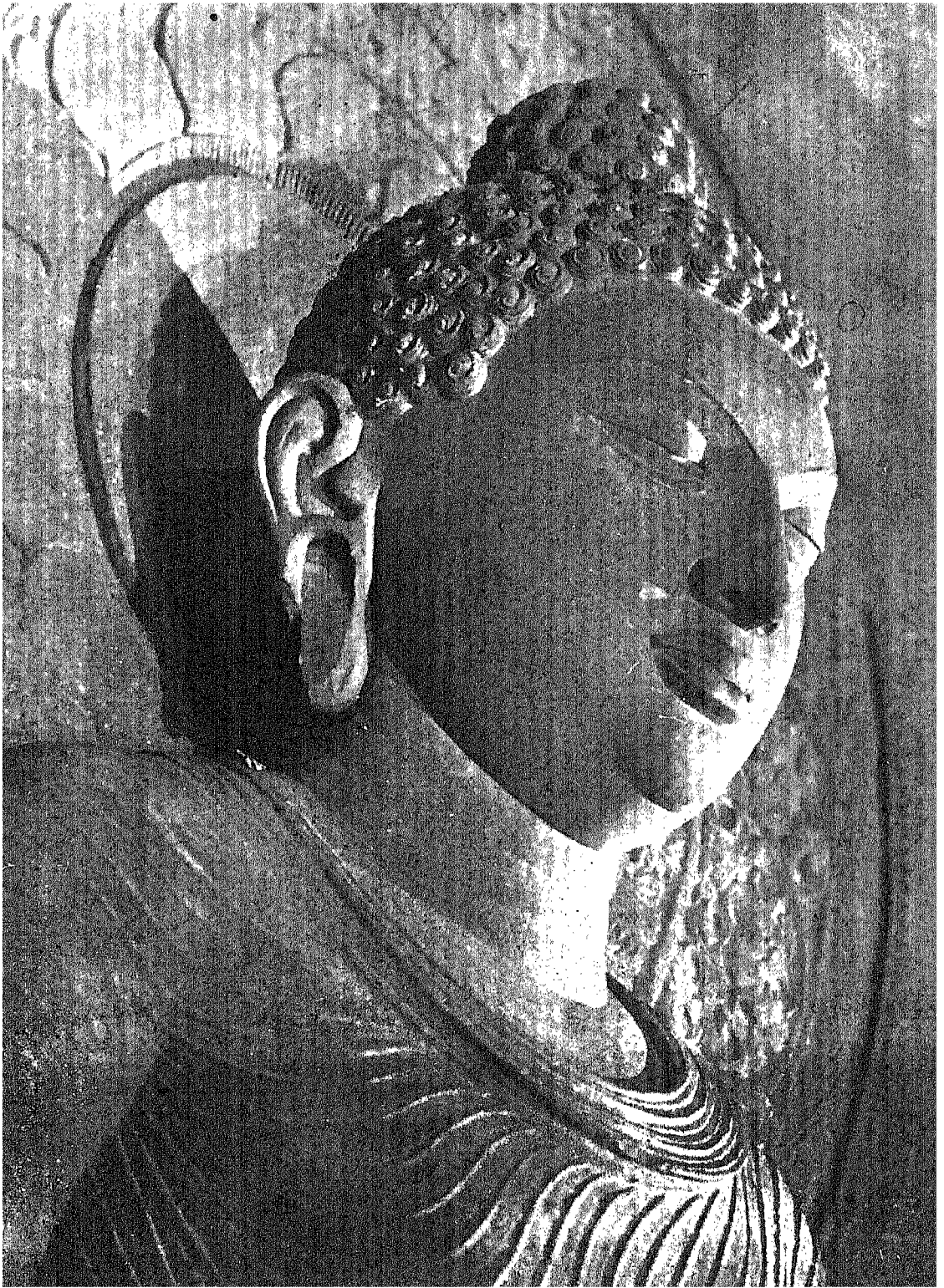
HISTORY

THE Indian civilization is probably older than the Egyptian, the Syrian and the Chinese. The excavations at Mohenjo-daro and Harappa in the Indus valley have brought to light a highly advanced urban civilization dating back to the 4th millennium B.C. The ruins and relics found there are remarkable specimens of arts and crafts, architecture and civic administration of a very high order. How and when exactly the Indus valley civilization came to an end is still a mystery. It has been suggested that the floods of the Indus were responsible for its gradual disappearance.

After the Indus valley people the Aryans came and there followed a steady expansion of their civilization from the north-west to the east and the south of India. The fruits of their spiritual effort are embodied in the *Vedas*, the *Brahmanas*, the *Upanishads* and *Aranyakas*, the six systems of Indian philosophy, the *Smritis*, that is, the Codes of Law, the epics of the *Ramayana* and the *Mahabharata*, the latter including the essence of spiritual knowledge and teaching, the *Bhagawad Gita*. In the sphere of metaphysics the subtlety of speculation and the profundity of thought attained heights which remain unsurpassed. In

mathematics the Aryans invented the decimal system of notation and the rule of three. Their most notable contribution in this field, however, was the concept of zero and the value of infinity. In medicine they made an extensive study of herbs and minerals and have left one of the most advanced systems of surgery and medicine to which the system developed by Hippocrates, the father of Greek medicine, was greatly indebted. In the realm of the arts and sciences, the contribution of the Aryans was equally valuable and lasting. The lines addressed to *Usha*, i.e. Dawn, personified as a lovely blushing maiden, have been regarded by many eminent scholars as unequalled in the world's literature for the beauty of diction and sublimity of content.

The Aryans were a pastoral people. They tended cattle and cultivated land and lived in well-planned villages. Life in the village was organized on a functional basis. The Aryans called it *Var-nashram Dharma* which they steadily evolved and perfected. The Aryan civilization passed through several stages which were characterized by speculation on the ultimate reality of the Universe. Later, however, it degenerated into excessive ritualism which robbed the Aryan life of its former



simplicity and nobility. The scriptures became a closely guarded secret of the priesthood and the common man was denied even the right to read them.

Buddhism and Jainism

This led to the rise of two great reformers, Vardhaman Mahavira and the Buddha Shakyamuni. Their movement represented a revolt against the formalized religion of the time. The Buddha preached the total renunciation of ritualism and worship and laid emphasis on morality and spiritual discipline. The central note of Buddha's preaching was that religion stood primarily for good action. He emphasized the ethical aspect of religion; theology and metaphysics were of secondary consideration with him. His greatest follower, Emperor Asoka, propagated his Law of Piety throughout India, Ceylon, Burma, Siam, China and Central and Western Asia. The teachings of Lord Mahavira laid special emphasis on the principle of "Ahimsa" or non-violence. His message, however, was confined to the land of its birth.

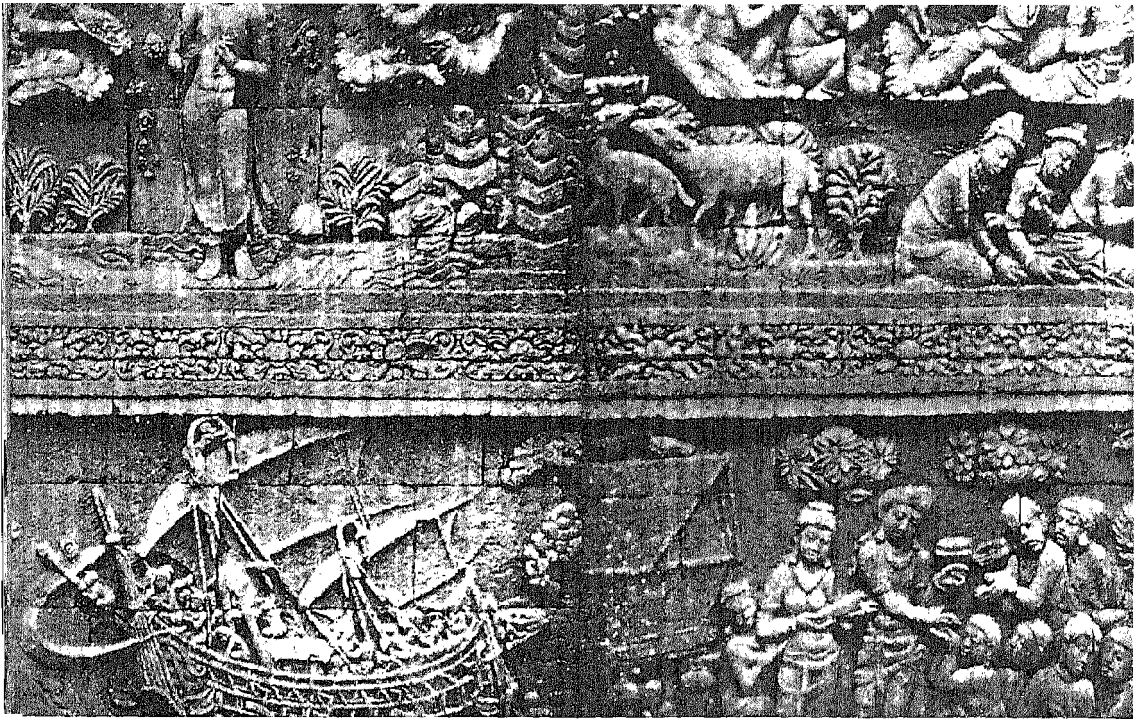
Mention should be made here of a fascinating episode in Indian history. It related to the spread of Indian influence to South-East Asia and the Far East. Early in the Christian era, merchants and adventurers left India to set up colonies in Java, Sumatra, Bali, Indo-China, Siam and Malaya. They were followed by princes, missionaries, architects and artists and the Indian colonies grew into kingdoms. The inhabitants of these lands adopted the Indian way of life, Indian philosophy and religion,

and Indian art and architecture began to flourish in distant places. From the first to the middle of the fifteenth century, almost the whole of South-East Asia was under Indian influence and people in most of these lands still retain the impress of Indian culture.

Impact of Islam

In the 7th century A.D. a new influence reached India through Islam which was first brought to India by the Arab traders who established themselves along the coast. From 712 A.D., when Mohammad Bin Kassim gained a foothold in Sind for the Caliph who ruled from Baghdad, successive waves of Muslim invaders came at fairly long intervals. After the Arabs came the Turks, and then the Afghans and last of all the Moghuls who like some of their predecessors ultimately made India their home. They ruled the country from Delhi and a few among the Muslim rulers like the Hindus before them succeeded in bringing a large part of India under their rule. They brought with them a different way of life and thought, and the influence of Islam on India was deep and profound. Politically, years of efficient centralized rule were followed by conflicts and wars between the ambitious princes when the power of Delhi grew weak. It is to be noted that these wars were dynastic and not religious; the conflicts between Muslim princes outnumbered those against the Hindu princes.

The advent of Islam did not lead to a break in the continuity of Indian life. Indeed, the history of India in the Middle



Bas-relief from the temple at Borobudur, Java

Ages records attempts at synthesis and co-operation between Hindus and Muslims on various planes. The degree of synthesis achieved was indeed more surprising than the fact that the synthesis was not perfect. Very significantly it has been reflected in the renascent vitality of the art and architecture of that period. It has also been reflected in the reformation and religious movements which characterize the history of medieval India. Ramananda and Kabir, Nanak and Chaitanya typify in their philosophy and their religious movements the fusion of the two cultures on the spiritual plane. This fusion entered into the life of the common people and this is "unmistakable in the evolution of customs and conduct, fashions and

festivals, in the very preparation of food and social and household affairs." In *Our Heritage*, Mr Humayun Kabir says, "In a word the mentality of the Muslim and the Hindu was so fused in the various manifestations of Indian genius that anybody who prides today in the unadulterated purity of his Hindu culture or his Muslim heritage shows a lamentable lack of historical knowledge and insight. Even as early as the time of Babar the process of assimilation had gone so far that he could characterize it as an unique mode of life—a mode to which he gave the name of the Hindustani way."

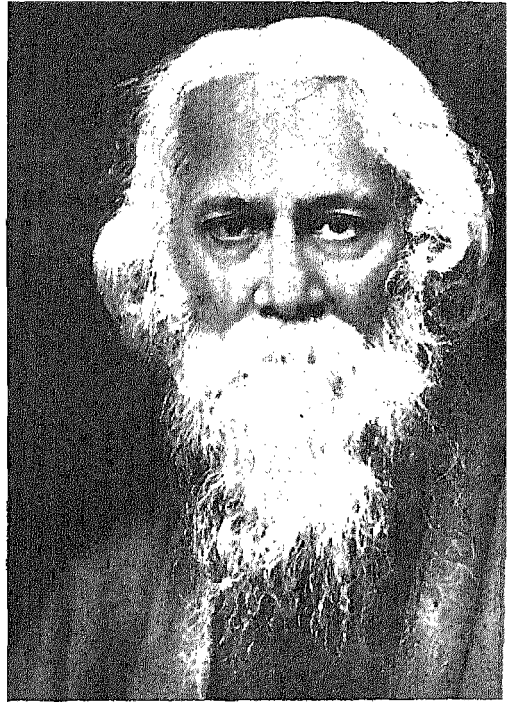
Under British Rule

In the 17th century India received the

impact of the West. The British East India Company, the French, the Portuguese and other European mercantile companies had established trading stations or "factories" on the Indian coast. Commercial rivalry led to political rivalry among these foreign adventurers at a time when Moghul power was at a low ebb, and the Maharattas and the Sikhs were making a bid for political supremacy. The British came here to trade and taking advantage of internal disorder stumbled into a kingdom. Ousting other European rivals they gradually established their rule in India.

At first political power was in the hands of the British East India Company. After the Sepoy War of Independence of 1857, the administration of the country was taken over directly by the British Parliament. The British sought to unify the country. While the spread of Western education facilitated administration and led to a consolidation of their power, it also produced results which were viewed with disfavour. The clash between the Eastern and Western outlook, the impact of liberal ideas from the West and of the best in the culture of England—its language and literature and its political liberalism—resulted in an all-round awakening in the country. Some of the finest products of the renaissance were Raja Ram Mohan Roy, Dayanand Saraswati, Ramakrishna Paramhansa, Swami Vivekananda and Rabindranath Tagore.

Special mention must be made of Raja Ram Mohan Roy, who may well be regarded as the pioneer of Indian re-



Rabindranath Tagore

naissance in the modern age. The essence of his teaching was that only by a critical synthesis of the cultures of the East and West could India go forward. He embodied in his person the synthesis of diverse cultures, for he was familiar with secular as well as religious literature in Sanskrit, Persian, Arabic and English. At one of the most critical periods in Indian history, Ram Mohan Roy thus stood out as a champion of every progressive idea that was then current: the basic unity of all religions, the introduction of Western science into India and the social and educational uplift of women.

In the line of direct descent from Raja Ram Mohan Roy stands Rabindranath Tagore, poet, teacher and philosopher who has become a household

name in distant parts of the world. He was India's first cultural ambassador to the world outside, and few have done more to restore the prestige of Indians in their own eyes and in the eyes of the world.

This new awakening led also to the growth of political consciousness which was intensified by the extension of education, development of industries and the emergence of a national press. Soon after, politics came to assume overwhelming importance and Indians began to strive for political independence.

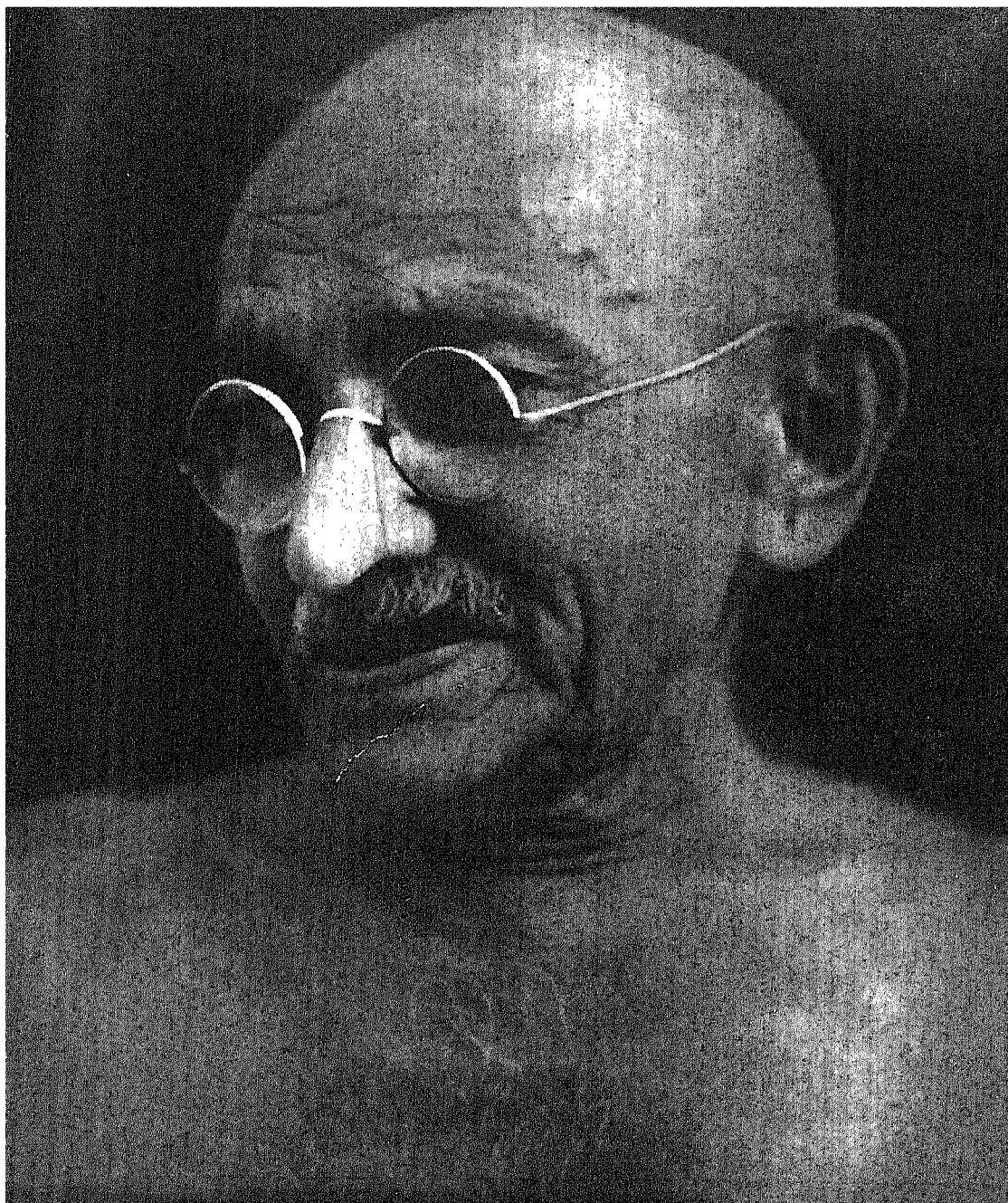
Towards Freedom

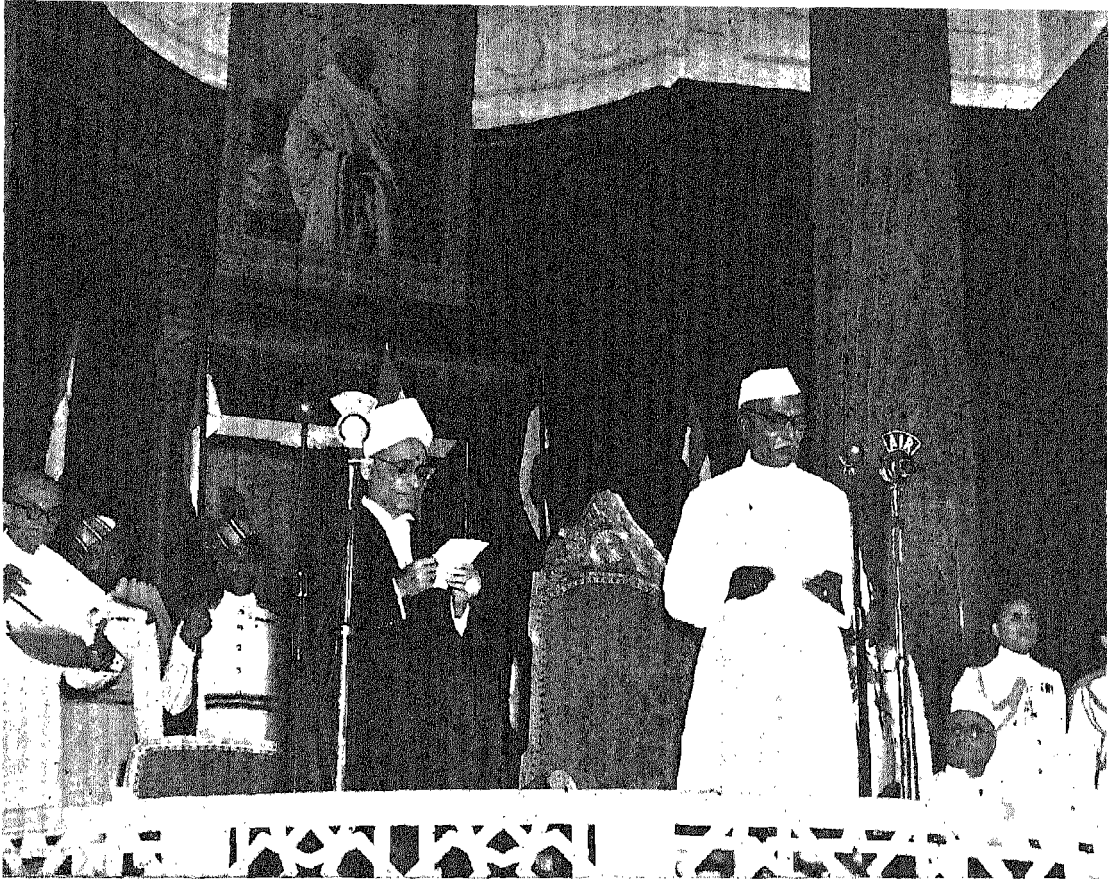
The first significant political event in this context was the founding of the Indian National Congress in 1885. The British Government were at first friendly to it because they thought they could control the intelligentsia of the country through this organization. But, gradually, political ideas grew and the sense of self-respect in the Indian led him into conflict with imperial Britain. Within a few years it became clear to the British Government that the Congress represented a serious threat to their future in this country and they therefore not only tried to repress the movement but also sought to counteract it by bolstering up the minorities. Indians on their part were convinced that mere petition for reform would be of no avail. Legitimate agitation thus went on side by side with violent revolutionary activities. At the end of World War I, however, Mahatma Gandhi entered the political scene of India and

won mass sanction for non-violent political struggle.

One of the major tasks that confronted India after the advent of freedom was political consolidation. Before August 1947, there were 552 semi-autonomous princely States which had direct relations with the British Crown. With the lapse of Paramountcy, however, it was left to the rulers to decide the future constitutional status of their States. The map of India looked like a jigsaw puzzle, its inordinately large number of units skilfully pieced together to produce a picture of a spurious unity. Thus, on the morrow of freedom, the autonomy of the princely States created a problem of vital consequence for the future of the country. India was faced with the threat of being broken up into a large number of independent enclaves, big and small. The Balkanization of the country would have destroyed all prospects of unity and peace in the country, wrecked its economy and undermined its security. Thanks to the statesmanship of Sardar Vallabhbhai Patel, then Deputy Prime Minister and Minister for States, India became a single and closely knit unit and the States an organic part of the Indian Union.

This integration was a two-fold process. The first stage was the consolidation of the princely States into viable economic and administrative units. To render consolidation effective, democratic institutions had to be introduced in the States which were formerly governed by autocratic rulers. In less than two and a half years after





Dr Rajendra Prasad being sworn in as the President of India at the Central Hall of Parliament House, New Delhi, on May 13, 1952, by the Hon'ble Justice M. Patanjali Sastri, Chief Justice of India

the achievement of freedom, the process of territorial integration was thus complete. This great act of reform, boldly conceived and swiftly executed, ended the age-old feudal order in these princely territories.

The reform was very well received by the subjects of the princely States. It conferred on millions of people, who had hitherto lived in narrow and closed groups, the benefits of a bigger economic

and administrative unit and above all the Rule of Law. For the first time in India's long history, this unity has also become manifest. Indeed, it is true to say that India is now a nation.

On January 26, 1950, India became a sovereign Republic and adopted a democratic constitution. She has, however, continued to remain in the Commonwealth, the membership of which does not detract from her

sovereignty. Today, India is the only republican member of the Commonwealth of Nations.

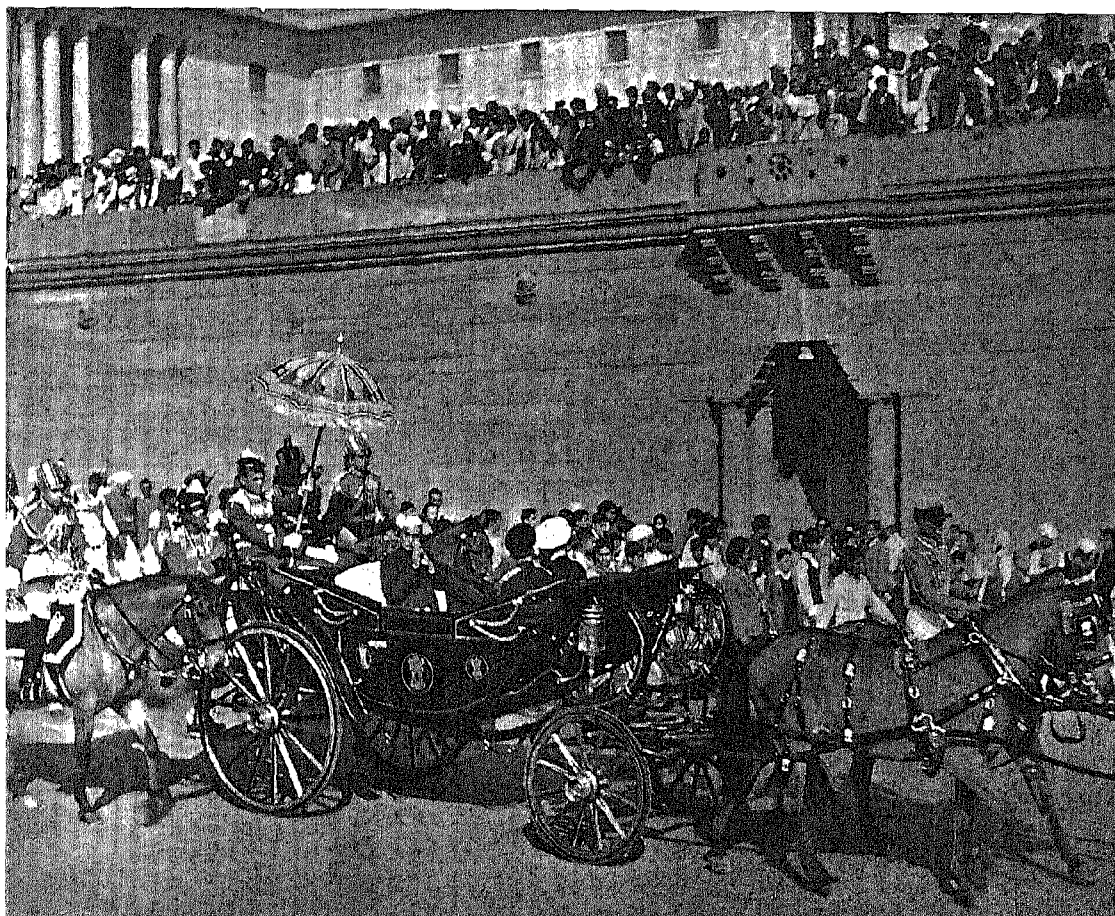
India is a secular State. Subject to public order, morality, health, etc., the people of India have been granted the freedom of conscience and the right to practise and propagate religion. In respect of civil rights, services and obligations, no discrimination is made on grounds of religion, race, caste or sex.

The Constitution includes a very elaborate declaration of human rights. It guarantees to all citizens of India the right to equality, the right to freedom,

the right to the freedom of religion, the right to property, cultural and educational rights, and the right to constitutional remedies. The Constitution has also indicated certain Directive Principles which seek to direct State policy with a view to securing a social order in which social, economic and political justice shall inform the institutions of national life.

India is a Union of twenty-seven States (variously called Part A, B and C States) which do not have the right of secession. The Constitution provides for a strong Centre, which will have

Dr Rajendra Prasad driving in state from Rashtrapati Bhavan



initiative and control in important administrative and legislative matters. It seeks to foster unity in administration through a common judiciary, uniform civil and criminal law and common all-India services. It is designed to meet emergencies, such as war, external aggression and domestic disturbances. In such eventualities, the President may declare a state of emergency when the Centre can function as a unitary government.

The people have the right to elect their representatives to Parliament and the State legislatures. They have the right to hold office, including that of the President of the Republic, the highest in the land. The Constitution further guarantees to the citizens of India adult franchise.

The Head of the Union is the President; Governors and Rajpramukhs, appointed by the President and answerable to him, are the heads of State Governments. All the Part A and B States have the cabinet form of government. In six of the Part C States, legislative assemblies and councils of ministers have been constituted. Full responsible government has not, however, been conceded to these States. The Centre exercises control over them and the Head of the State, whether he be a Lieut.-Governor or a Chief Commissioner, is responsible to the President for ensuring proper administration in these areas.

With a view to securing political and economic democracy for the Indian people, the Constitution guarantees social, political and economic justice, equality of opportunity and status, the

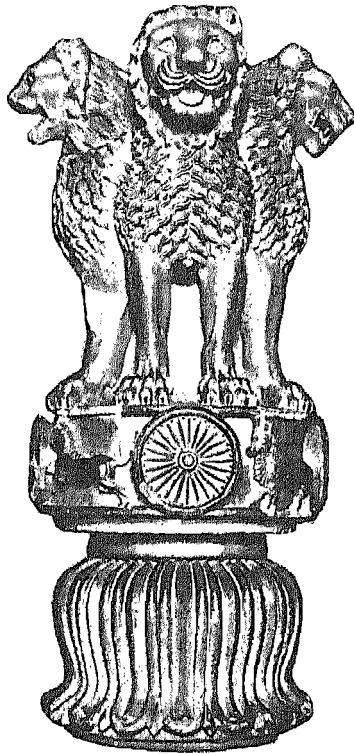
freedom of thought and expression to all citizens, irrespective of caste, creed and sex.

At the same time, the new Constitution envisages the restoration of *panchayats* in areas where they have ceased to exist. Several States have already introduced *panchayat raj* in their villages.

Free India inherited a legacy of poverty and problems. There was not enough food to go round, millions of refugees had to be fed, clothed and found shelter. There was a vicious inflation at the end of World War II and prices remained at high levels. There was consequently a decline in industrial production and a huge deficit in India's balance of trade. The invasion of Kashmir, communal disturbances and organized disruption by anti-social elements in certain parts of the country made the situation worse.

India faced up to those problems with determination and she can rightly claim that the results have been heartening. To assess the resources of the country and formulate a plan for their effective and balanced utilization, the National Planning Commission was set up in March 1950. In December 1952, the Commission submitted the report which has since been accepted by the Government.

The first general election under the new Constitution was held in 1951-52, in which over a hundred million people in India exercised their franchise to fill 3,772 seats in the House of the People and the Legislative Assemblies of the States and 546 seats in the upper chambers in the country.



CHAPTER III

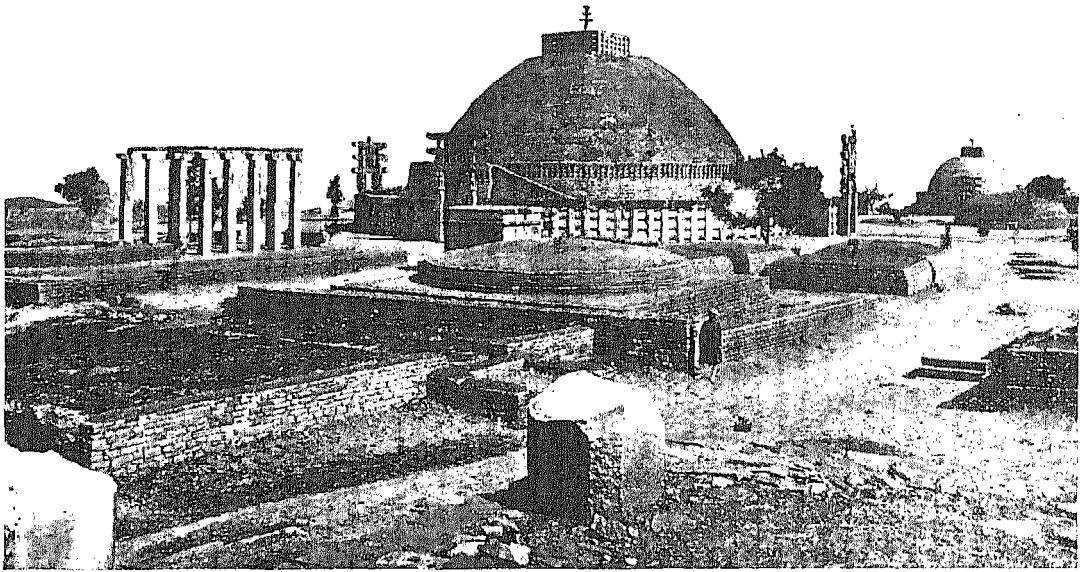
CULTURE

Architecture and Sculpture

The excavations at Mohenjo-daro and Harappa have revealed that the Indians had a highly advanced knowledge of architecture and town planning as early as 3,000 B.C.

Early Indian architecture was of two varieties. The best examples of the first type are found at Karle, Ajanta and

Bagh. Here the shrine is hewn out of the solid rock. In the second type the exterior rock is cut away so as to leave an entire temple of solid rock. The Kailas temple at Ellora, the Masrur temple in Kangra, the Vaishnava temple at Damnar and the "Seven Pagodas" at Mahabalipuram are notable examples of this style.



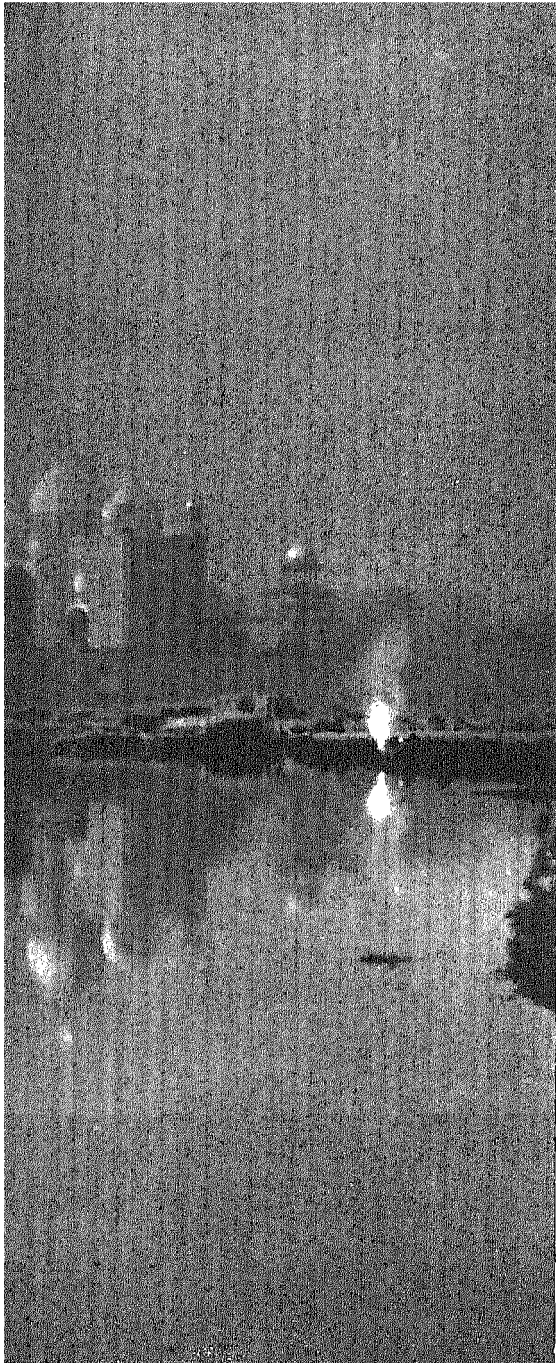
The Great Stupa at Sanchi, Central India

Architectural and sculptural monuments in stone appeared for the first time during Asoka's reign in the third century B.C. The six Asokan edict pillars, the best known of which are those bearing the Sarnath Lion Capital, near Banaras, and the Rampurva Bull Capital represent the court art, while the statues of Yakshas and Yakshis (dryads) and the reliefs of the early *Vihara* (monastery) represent the popular art. The edict pillars are round, polished, monolithic shafts 40 to 50 feet high and are found over a large area.

The monasteries at Udayagiri and Khandagiri in Orissa were contemporaneous with Bharhut. The 'stupa' at Sanchi is among the best preserved

Buddhist monuments. On its 'torans' (gateways) Jataka tales and scenes from the Buddha's previous incarnations are executed with a delicacy suggestive of ivory carvings. The Buddha himself does not appear in any of these illustrations; he is represented by symbols. The Sanchi reliefs are naturalistic in treatment and Buddhistic only in theme. Full of zest for life the dryads look outwards rather than within.

With the Mathura School (200 B.C. to 600 A.D.), however, the stone images of the Buddha replace the symbols. The prolific Mathura School evolved various styles to which most of the later developments can be traced. The Buddhist monuments of this period were magnificent.



scattered over a large area. The most famous examples of this style, however, are found at Dilwara on Mount Abu.

Muslim Period

What is called the Muslim period of Indian history is also very rich in art and architecture. Both the Turko-Afghan and the Moghul princes showed enthusiasm for art. They built towns, mosques, towers, mausoleums and forts. The architecture of this period shows the happy blending of Hindu and Islamic styles. This blending may justly be termed Indian. One common link between the Islamic and Pre-Islamic Indian styles was "the fact that both Islamic and Hindu art were inherently decorative." Some of the specimens of Indian architecture during the Turko-Afghan period are the Kutab Minar at Delhi, the Atala Devi Masjid at Jaunpur, the Adina Masjid at Pandua, the Jama Masjid at Ahmedabad, and the Chand Minar at Daulatabad. They show the mingling of the foreign and the indigenous styles and reveal the harmony and mutual understanding produced in art and culture by the impact of Hindu and Islamic civilizations.

The Moghul period is still more magnificent in its architectural output. The grand Moghuls reveal the magnificence of their hearts in the splendour of the noble buildings they erected. Emperor Akbar "planned splendid edifices and dressed the work of his mind and heart in the garment of stone and clay." He made use of Hindu styles and combined them with the Persian. Jahangir Mahal in the Agra Fort and many buildings of



*Dancing girl, a mural
in Pallava cave temple,
Sittannavasal Pudukottai*

Fatehpur Sikri are happy illustrations of this fact. Shah Jahan was an even more prolific builder than his grandfather. Though Shah Jahan's structures are "inferior in grandeur and originality," they are "superior in lavish display and rich and skilful decorations." Some of the world-famous architectural

achievements of this period are the Humayun Tomb, the Jama Masjid, the Dewan-i-Am and Dewan-i-Khas at the Red Fort in Delhi, the Moti Masjid (Pearl Mosque) at Agra Fort, the Taj Mahal at Agra and Akbar's mausoleum at Sikandra. The architecture of this period also reveals a continuation of the



same synthetic process, the same happy mingling of Muslim and Hindu art traditions and elements as noticed in the Turko-Afghan period.

Painting

The primitive ruddle paintings in natural caves in various parts of North and Central India belong to the palaeolithic or neolithic age. These are the earliest records of Indian painting.

Ajanta, Bagh and Sittannavasal contain India's best murals which, according to Signor A. Cecconi, the greatest living authority on Italian fresco painting, "will bear comparison with the best that Europe could produce down to the time of Michaelangelo." The Ajanta frescoes painted in tempera at various dates from the first century B.C. to the seventh century A.D. represent the Buddhist narrative art at its best. The lines are strong and subtle; plasticity is suggested by a single stroke.

By 800 A.D., wall painting on a large scale was a thing of the past. It was replaced by miniature painting, two schools of which flourished at the time: the Pala School (Bengal and Bihar) and the Gujerat School in western India. The Pala School confined itself to Buddhist gods and goddesses, while the Gujerati School was more comprehensive as well as intensive.

This was the age of illustrated manuscripts. In their earliest days they were written on palm leaves which were gradually replaced by paper. It was, however, during the period of transition (1350-1450 A.D.) that the best works were produced. The motifs in these

illuminated manuscripts were provided by Jain sacred texts, Krishna Leela scenes and themes of conjugal love. Manuscript illustration was later modified by Moghul and Rajput influences.

Hamza-Nama which was illustrated by about 50 painters under the supervision of the great Persian masters, Sayyed Ali and Samad, represents the beginning of Moghul art. It contains nearly 1,400 paintings. Moghul painting owed its existence and development to court patronage and its chief characteristics were secular motif, subtlety of line, brightness of colour pattern and exquisite finish.

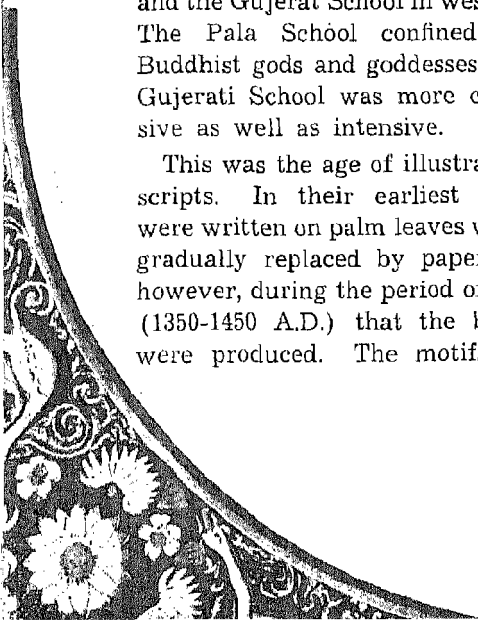
Rajput painting sprang from mural art. Its theme, unlike Moghul painting, was popular, tradition hieratic, and appeal universal. Embedded in popular religion, it had greater chances of survival.

Though sometimes secular, Rajput painting drew much of its inspiration from (a) the two epics, the *Mahabharata* and the *Ramayana*; (b) Saiva and Vaishnava mythology; and (c) the Ragas and Ragamalas.

The Kangra School developed in the latter half of the eighteenth century under the patronage of Raja Sansar Chand. It represented the finest and the last phase of Rajput painting in the nineteenth century.

Modern Period

All forms of artistic expression in India today show the quickening influence of modern trends, but the phases of this evolution are more strongly marked in the case of painting and



प्रदहनिवसामितगणितवनवेतसा | हरिचरणशरणजयदेवकविजारीतीदसतुहृदिमुवति
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An illustrated manuscript of the
 Gita Govinda, 16th century A.D.

Radha and Krishna, Kangra
 School, late 18th century

Jehangir at the rose-water
 sprinkling festival, Moghul
 painting of early 17th century



sculpture than in any other forms of art.

The movement for drawing upon the past traditions of India pioneered at the turn of the century by Abanindranath Tagore and his disciples was inspired by a feeling based on intense national consciousness. The art of the revival, based on an intense study of the Ajanta, Moghul and Rajput traditions, reaffirmed the faith in the vitality of values native to the soil, in the face of the onslaught of the west. A nostalgic, but genuine and moving, lyricism in the case of the gifted and a narrative fluency of illustration in the hands of the talented—these were the two points of positive achievement of this revivalist effort. Meanwhile, the tense conflict in the situation disappeared from the political field and the second phase of revivalist painting is content to conserve only two legacies which have been proved to be of great value to contemporary decorative art: the melodic beauty of the line and the appeal of delicately blended tonalities.

The revivalists had salvaged the aristocratic traditions of the past. There was another—a rich and vital folk tradition—which was interpreted with consummate mastery of form and colour by Jamini Roy. Motifs of folk art have the great virtues of simplicity, refreshing colour and direct emotional impact. Helped by Roy, many young Indian artists are rediscovering the latent strength of folk-art forms.

The revivalists had totally rejected Western ideals like perspective, verisimilitude and the architectonic division



Abhisar by Dr Abanindranath Tagore

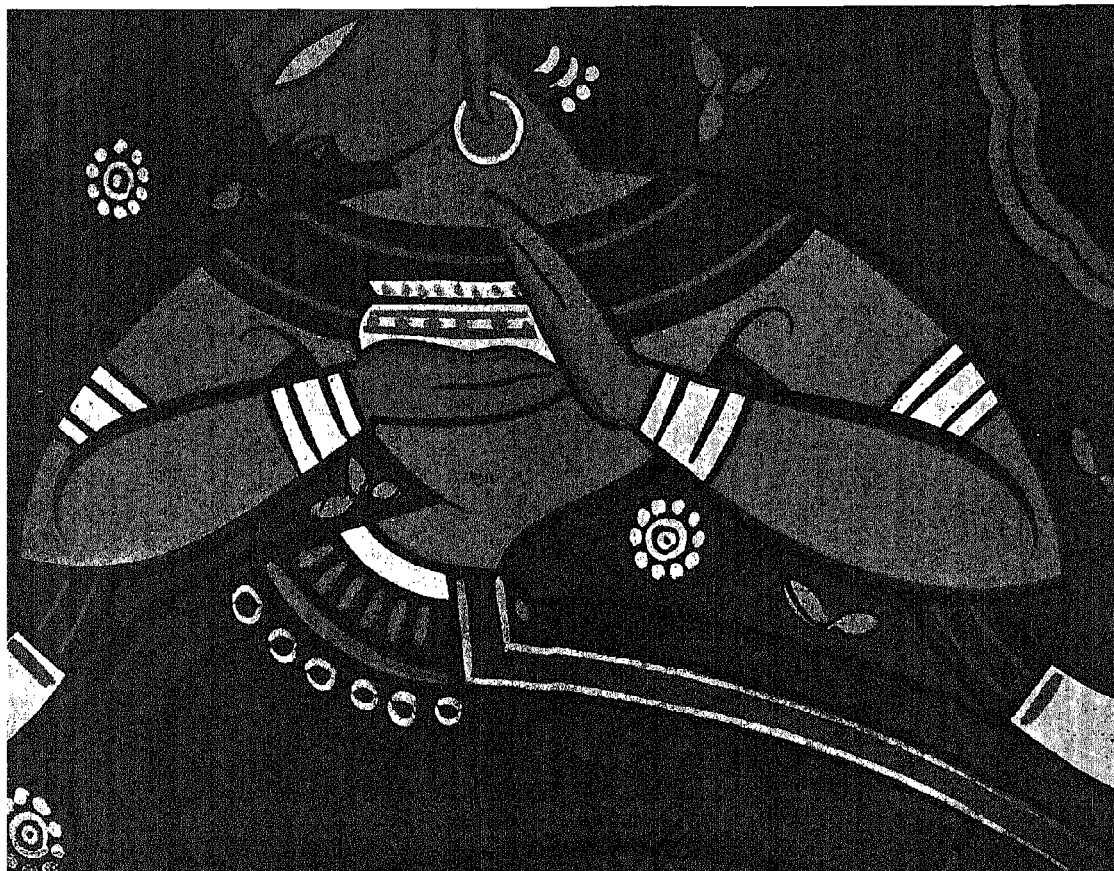
of space. Though exclusive in its outlook, revivalism had been willing to assimilate the calligraphic beauty of the line of China and the colour technique of Japan and in this they might have been prompted by the unconscious antithesis of East and West. The unhappy political context of the past being no longer there, this antithesis has no meaning today for the younger artists of India who have quietly gone ahead hunting up affinities far and wide and assimilating these influences to produce a modernistic art. Even in the climatic phase of the revival, this cosmopo-

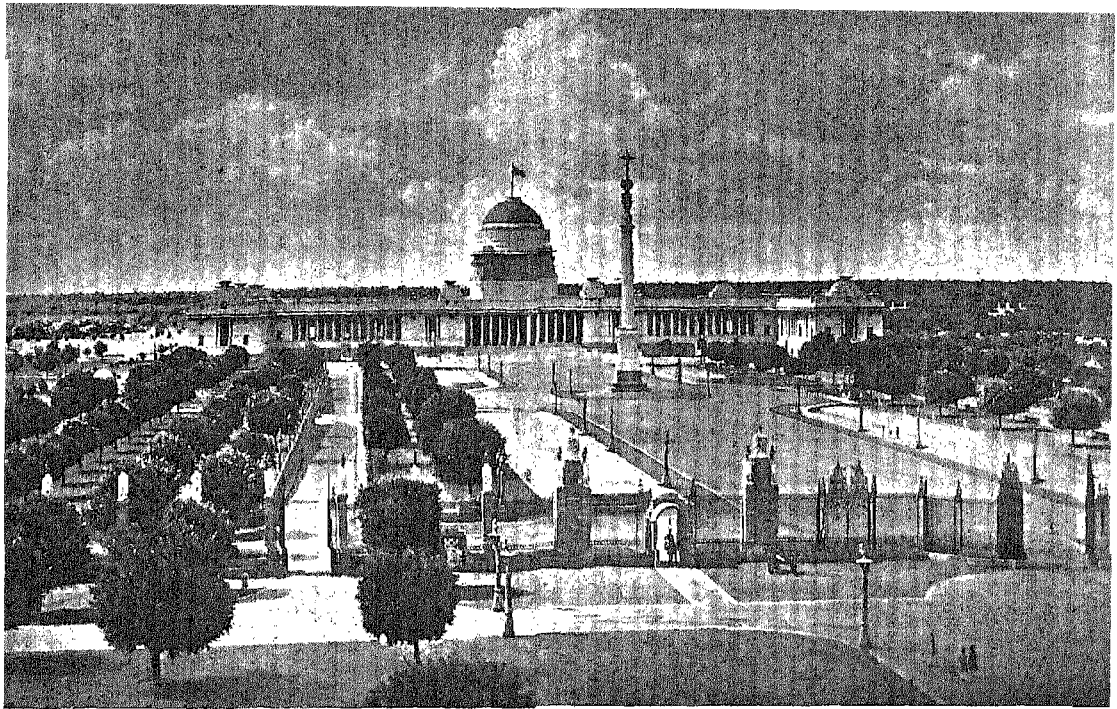
litanism had been anticipated by Gaganendranath Tagore and Amrita Sher-Gil had proved that the cross fertilization of Indian and European art traditions could yield valuable strains. The far-flung nature of the net work of stimuli which play on the younger artists can be understood when we realize that it is possible to mention paintings which have assimilated suggestions from neolithic cave paintings, ancient frescoes of Egypt, Coptic and Aztec art, Sung landscapes, Japanese colour wood-cuts,

Composition.
Amrita Sher-Gil



Gopini,
Janvini Roy





Rashtrapati Bhavan, New Delhi

French impressionism, Mexican mural painting, etc.

The heaving, subterranean sea of the unconscious has also erupted to the surface. Again, at the height of the revival, there was a clear anticipation of this development when Rabindranath Tagore "searched out," to quote his own words, "the cave of the primitive in my mind with its etchings of animals."

Mosaic in its psychological import, such expressionistic painting condenses many memories, held together by masculine violence rather than by feminine harmony and delivering its cryptic message with a finality that has to be respected, though temperaments

nurtured on smooth classical surfaces often find the impact of such art overwhelming.

Cultural frontiers have always dissolved when artistic impulses of great vitality have radiated from their original sources. Indian architecture and painting once radiated as far as Indonesia and Japan and conversely it is true to say that the renaissance in architecture which began in Florence in the fifteenth century ended in New Delhi in the thirties of this century with the Rashtrapati Bhavan and the Secretariat Buildings. The principle underlying the designs of the architects here has been "to weave into the fabric of the more



Buddha's penance, sculpture of the Gandhara School

Graeco-Buddhist Sculptures

In the Graeco-Buddhist sculpture of the Gandhara School, the product of the mingling of Indian and Graeco-Roman art in the service of the Buddhist faith, the subjects were drawn mostly from the Buddha legend. The school attained the height of its glory under the Kushan emperors during 100 to 200 A.D. Its influence extended to Central Asia.

The Buddha image of the Gupta period was derived directly from the

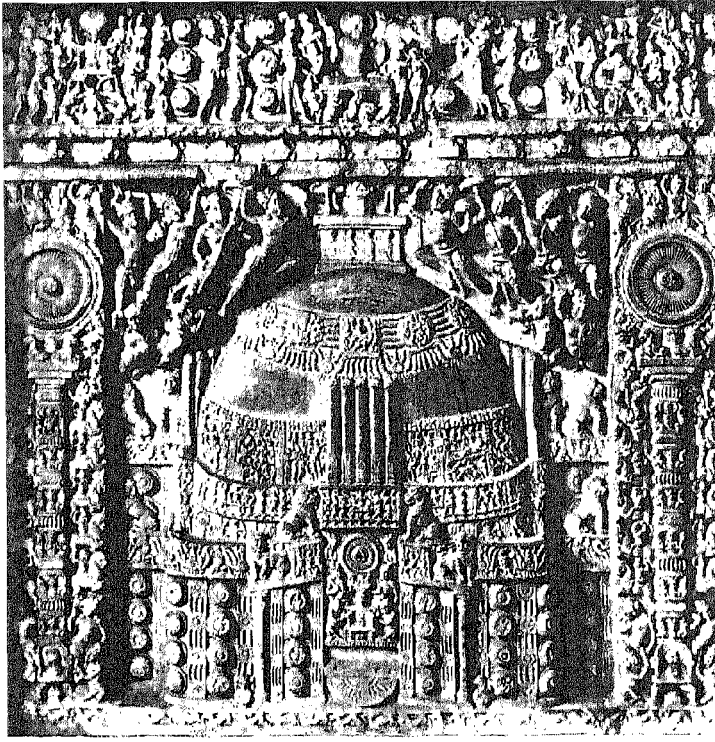
Mathura School. The Golden Age of Indian Painting and Sculpture was reached under the patronage of the great Guptas (7th and 8th centuries A.D.). Though Gupta sculpture derived its motifs mostly from the Hindu pantheon, Buddhist themes also received considerable attention.

Later Andhra School

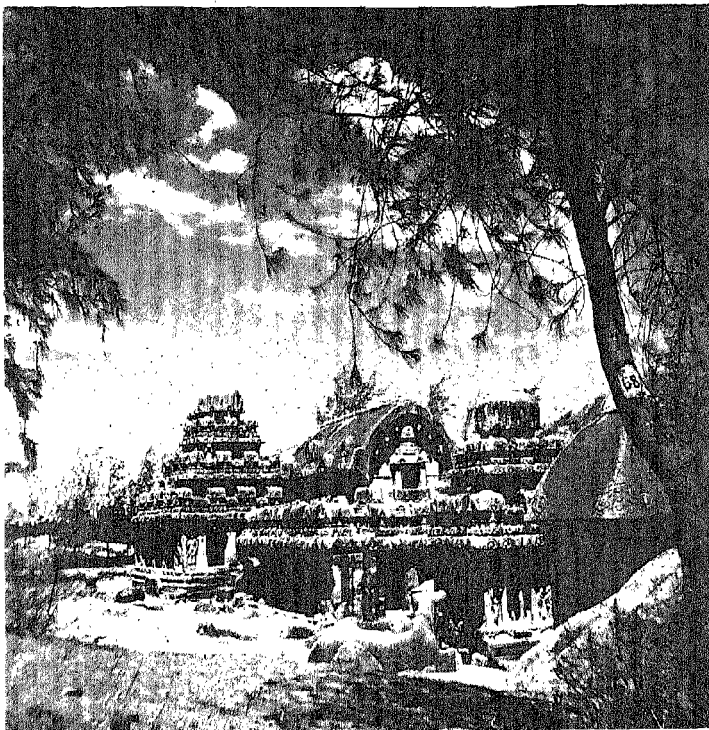
The reliefs at Amaravati represent the sculpture of the later Andhra School at the close of the second century A.D. The Amaravati stupa was once surrounded by a large and richly decorated stone railing. The sculpture at Amaravati, according to Ananda Coomaraswamy, is "the most intimate, and enchanting of any in India. . . .



An Asokan Capital

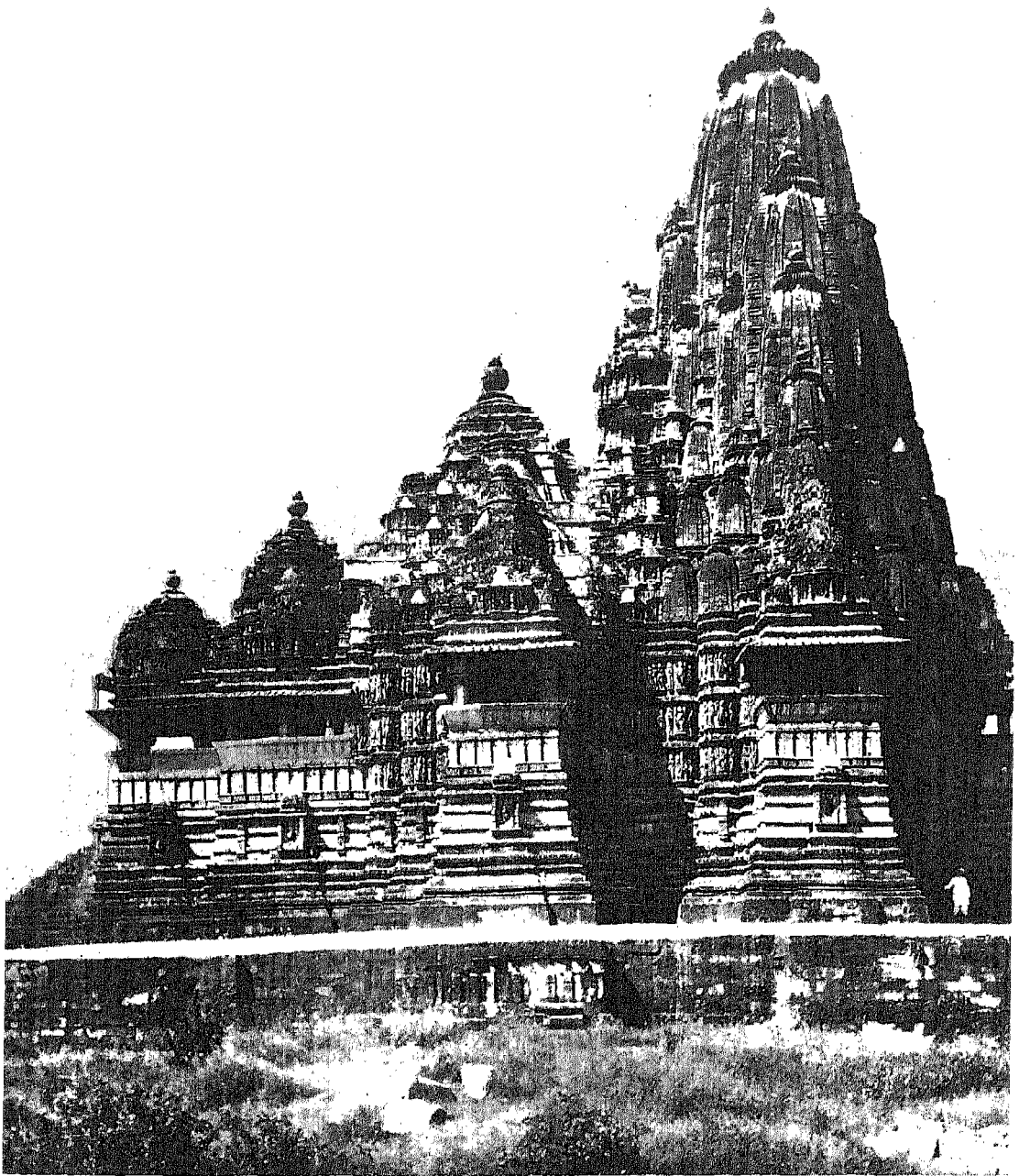


*Carving on the Stupa
at Amaravati*



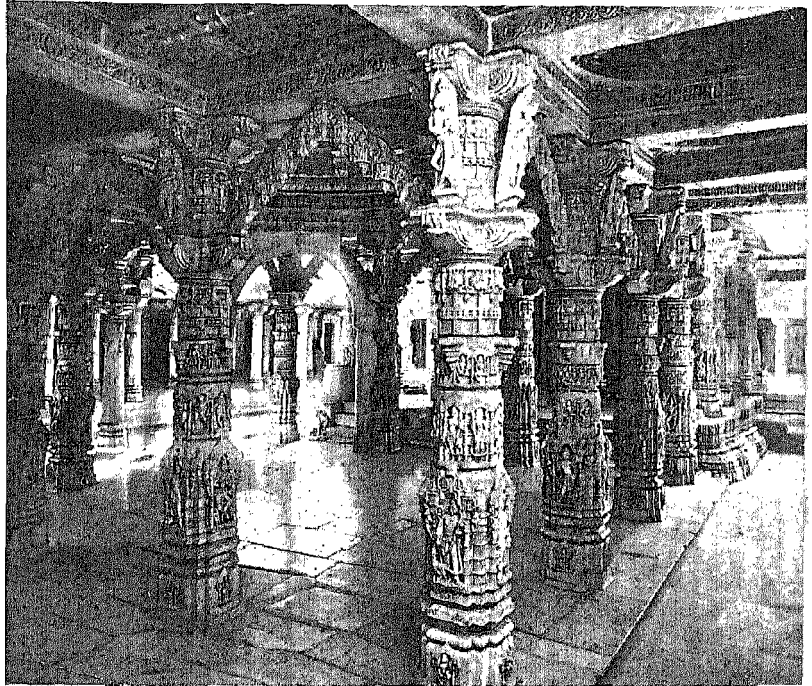
*The rock-cut temple
at Mahabalipuram*

*The Mahadeva
temple at Khajuraho*

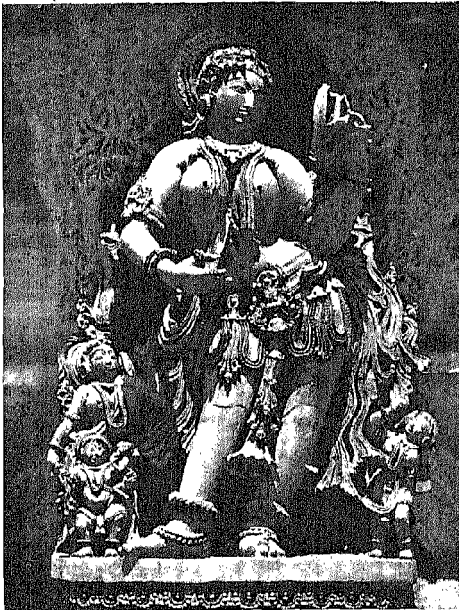




*General view
of the hall
in the Vimala
Vasahi temple,
Mount Abu*



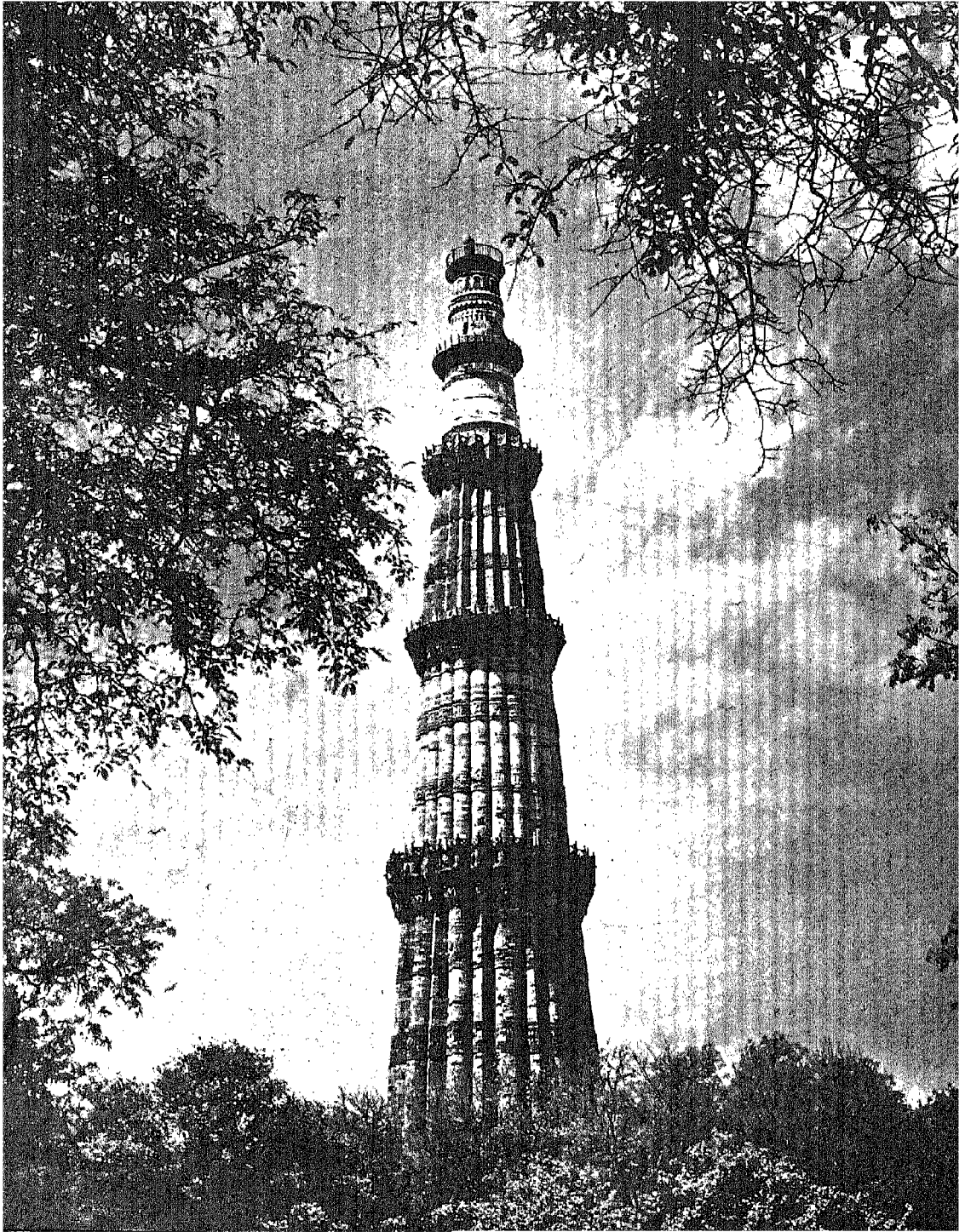
*Lady with mirror
—a bracket figure,
Behr temple*



'sculpture became art' for the first time," in the same way as the epic became lyric.

When the Pallavas moved southward from the Kistna-Godavari delta in 600 A.D., they carried with them the rich artistic tradition of the eastern Andhras. The Pallava king, Mahendra Varman I (600-625 A.D.), built the earliest temples in stone in the south. The famous "Seven Pagodas" at Mahabalipuram, of which mention has already been made, are monolithic temples built in the first half of the seventh century.

The Brahmanical caves at Badami and Aihole contain large and elaborate reliefs illustrating Puranic mythology and legend. They belong to the early Chalukya period (550-560 A.D.). The Rashtrakutas who succeeded the Cha-



lukyas in the Western Deccan built their most important monuments at Ellora and Elephanta (753 A.D.). At Elephanta there is a colossal relief, which is regarded by art critics as the best and most dynamic example of the sculpture of the period.

Orissa Sculptures

The Orissa sculptures as seen on the temples at Bhuvaneshwar, Konark and Puri belong to medieval art which is typically Brahmanical. It was pro-

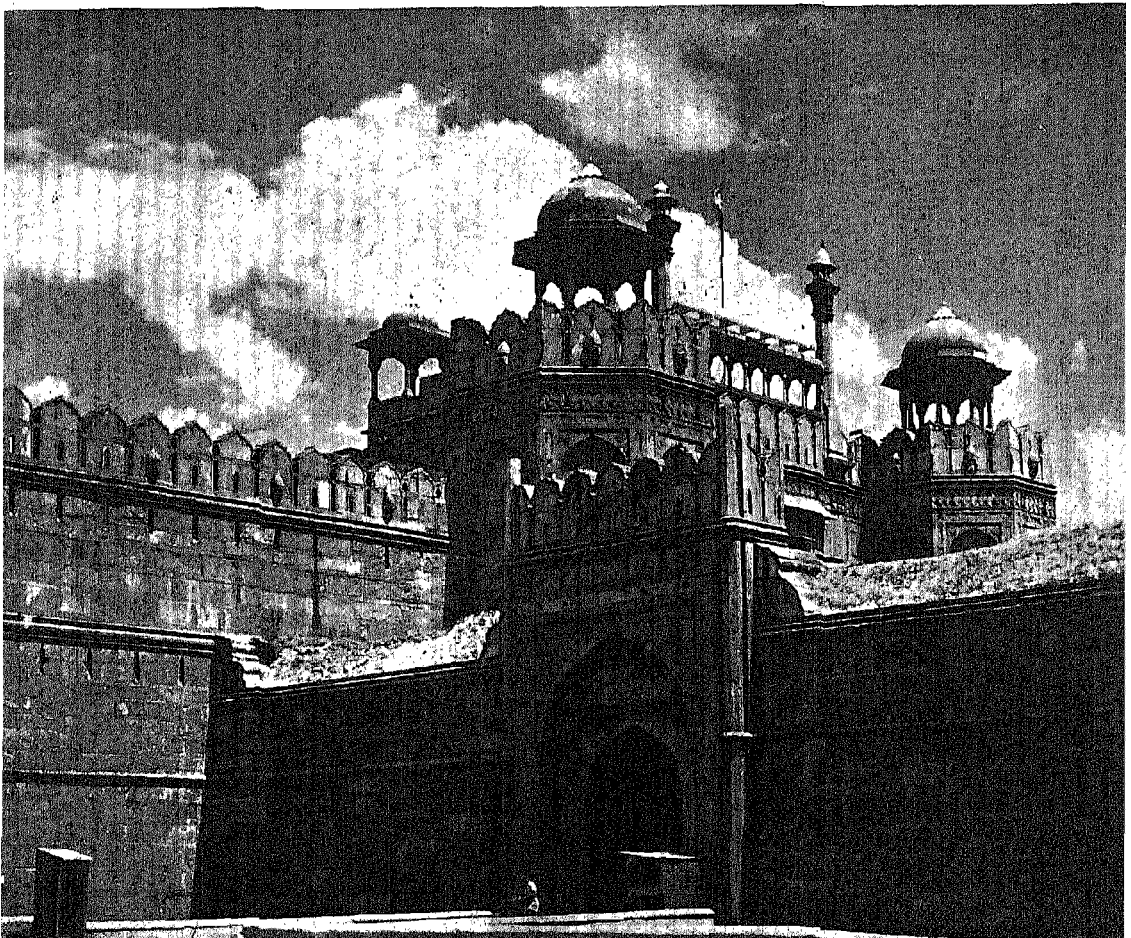
duced during 800 to 1300 A.D. The erotic and animal motifs of the Konark temples are particularly noteworthy. The magnificent temples in hard creamy stone at Khajuraho in Vindhya Pradesh are among other specimens of Brahmanical sculpture.

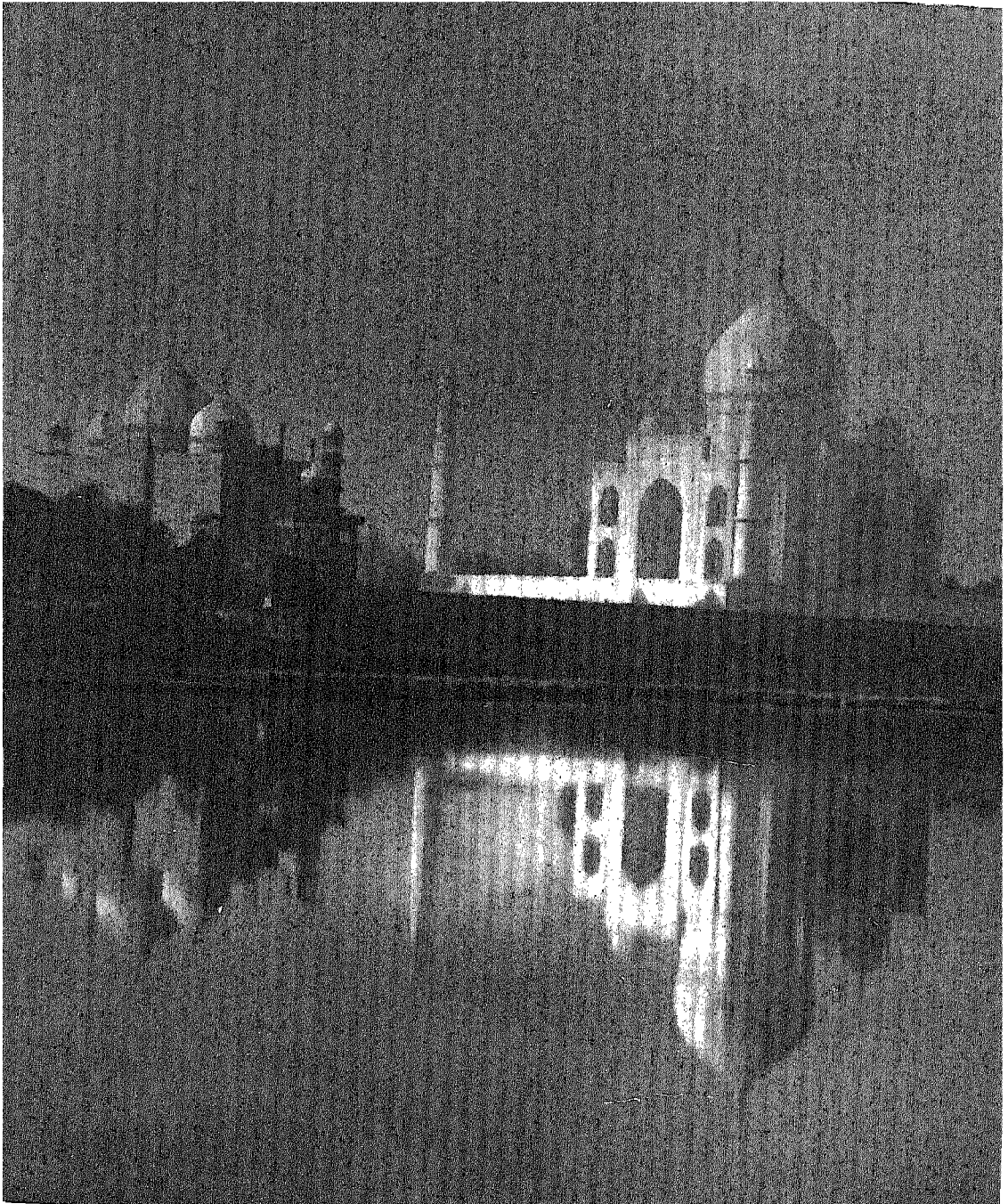
Later Chalukyas

The later Chalukyas after 973 A.D., the Hoysalas of Mysore (1200-1300 A.D.) and the Solanki dynasty in Gujarat (1000-1500 A.D.) left a legacy of temples

Kutab Minar, Delhi

Red Fort, Delhi





The Taj Mahal

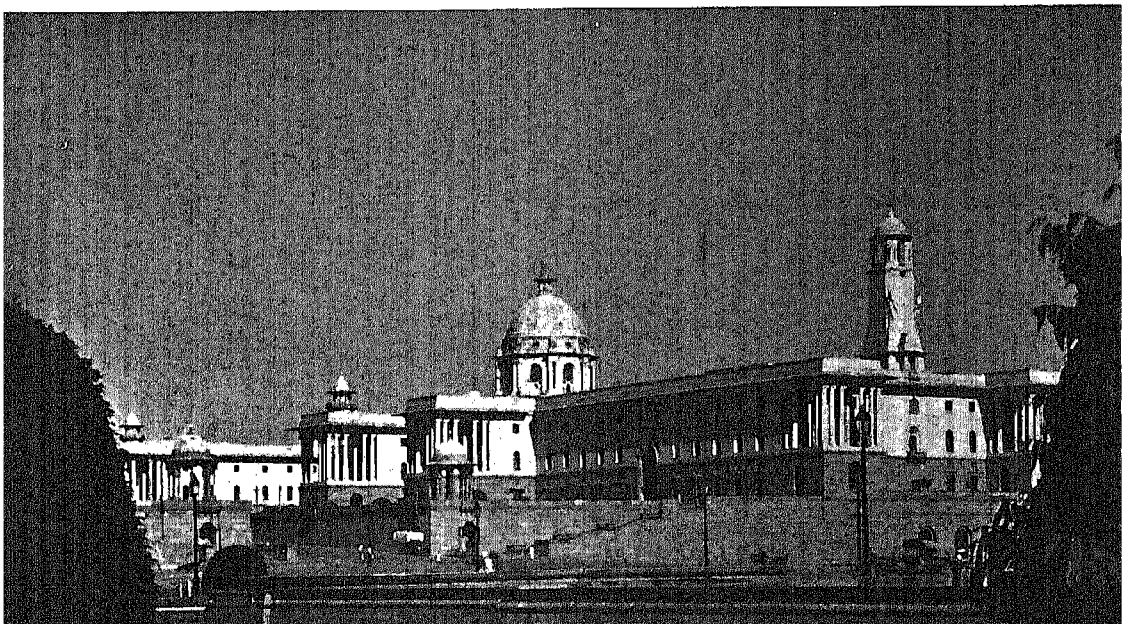
elemental and universal forms of architecture the threads of such traditional shapes and features as were compatible with the nature and use of the buildings". The result has been happy, combining a chaste simplicity of outline and main contours with an elegant richness of detail, classic nobility of proportions with functional adequacy. The lay out, likewise, relates happily the many heritages of the past to the achievements of the present. Significantly, viewed from the end of the Parliament Street, Shah Jehan's great mosque Jama Masjid appears in a line with the Parliament buildings in New Delhi, and the Kingsway runs from the Rashtrapati Bhavan to Purana Qila, traditionally the oldest site of the Capital.

The unbuilt, open terrain which the builders of New Delhi selected for the Capital gave them a free hand in lay-out

without involving any 'painful surgery' of old cities. New Delhi has nearly 80,000 trees, 200 miles of hedges and 3,500 acres of park and garden lands. The city's gardens use 50 million gallons of water daily. Almost all the bigger cities of India place a similar emphasis on parklands. Perhaps the finest expression of this outlook will be Chandigarh, the new capital of Punjab, in the planning of which Le Corbusier, one of the world's greatest architects today, has been associated. Instead of regarding a capital as a governmental centre surrounded by houses, the new outlook envisages a city designed as a social structure graded to suit different economies and ways of life but including everywhere such services as community centres, sports grounds, health centres and schools.

In urban areas where the cost of land forms thirty to forty per cent of the

Central Secretariat, New Delhi



total value of 'a building, apartment houses or blocks of flats suitable for community living are replacing isolated bungalows and villas. Modest but significant triumphs of the architectural art, their designs yield the maximum of living space from a minimal use of construction material. In places like Madras the expansion of the network of rural electrification schemes has resulted in the growth of suburban colonies and healthier village units.

Structures like theatres, townhalls, aerodromes, railway stations and industrial establishments are inspired by the modern outlook of eliminating decorative elements which are additional to the basic functional outlines and rely more on streamlining these outlines in the direction of purer aesthetic effects. In an undertaking, like the Kandla Port, tenders with designs were invited from firms with international repute and the final design was worked out by a high-level committee of engineers. The magnitude of the work can be understood from the fact that the main harbour will need 35 million cubic feet of earthwork for reclamation and 32 million for roads, bunds and railways.

In the initial stages of the revival, sculpture did not show such vitality as painting, but it has caught up in recent years. As in the case of painting, there is a wide variety of tendencies. Many

talented sculptors have been content to follow the suggestions of the rhythmic, decorative tradition in Indian sculpture represented by the wood-nymphs of the Gupta period. An academic tradition also developed which has realized, in the hands of some of the senior artists, plastic intuition of the highest order. Essentially, the movement of modern sculpture has been in the direction of simplification of form in expression and greater social awareness in content. New media also have entered the field like concrete and wood. Creations in these media fully take into account their intrinsic plastic and textural possibilities and in the case of a few gifted artists have reached heights of excellence.

Reawakened and enlightened interest in the classical tradition and a parallel evolution of lithe, supple forms which renounce classical weight for immediacy of appeal mark the developments in the fields of music and dance. Some experiments are being conducted in harmonizing Indian melodies and though they belong to the periphery of musical effort today, they have led to interesting results. A new type of ballet is emerging, based fundamentally on classical dance but modernized in costume, stage-setting and musical accompaniment. In its content this type of ballet is tending more and more towards contemporary social problems.



CHAPTER IV

INDUSTRY

World's Industrial Workshop

Long before the industrial and commercial revolutions of the 19th century, India was known as the "agricultural mother of Asia" and the "industrial workshop of the world." She was the hub of the world's commerce. Rice, wheat, sugar and raw cotton went from India to other parts of Asia, while her cloth, silk and luxury goods were in great demand in every part of the civilized world. Thus, she drew to herself a sizable share of the world's gold and silver. The skill and dexterity of the Indian craftsmen in the production of highly delicate and artistic cotton

and silk fabrics, wood and ivory carving, and the working of metals and precious stones evoked universal admiration. Indian calicoes, silk muslins and chintzes found such favour in England that they set the fashion for the people of all classes "from the gallants to the meanest cook-maids."

The epoch, 1600-1770, represented the golden age of Indian trade and industry. But the end of the 18th century, which synchronized with the ascendancy of the British in India, witnessed a rapid industrial decay. The various restrictions imposed by the East India Company on her trade and commerce were

chiefly responsible for the decline of the Indian economy.

Ruin of Indian Industries

In its trade with India, the original aim of the East India Company, like that of all the monopolist companies of merchant capital, was to secure a monopoly trade in the products of India. But with the consolidation of the British power in India in the second half of the 18th century, coercion was employed by the company to secure maximum goods against the minimum of payment. The wealth thus amassed laid the foundation of industrialization in England in the 19th century.

In order to find an adequate outlet for the increasing volume of English manufacturers, India had to be transformed from an exporter of textiles into an importer of manufactured goods. Accordingly, during the 19th century she ceased to have a balanced economy and became an agricultural dependency of Britain.

The 19th century saw the rapid deterioration of Indian handicrafts and village industries. With the ruralization of her population and recurring famines, the old industrial structure was destroyed. The displacement of millions of weavers, village craftsmen and artisans, and the rapid increase in India's population imposed a heavy pressure on agriculture which has since increased from year to year. The simultaneous overcrowding and decay of agriculture as well as deindustrialization resulted in the growing poverty and indebtedness of the peasant. The frequency of

famines in the 19th century (31 famines with an estimated mortality of 30 million) was previously unknown in this country.

Growth of Modern Industries

The modern industries of India date back to the period, 1850-55, when the cotton and jute mills and the coal-mining industries were first established. The pace of industrialization, however, was extremely slow and confined to a few light industries like cotton and jute. The iron and steel industry made little progress before World War I.

From 1914 onwards British economic policy changed gradually. The war suddenly created a demand for Indian factory goods. Imports could not easily be obtained from Europe and the war requirements of the Allies, particularly in iron and steel, woollen goods, jute and leather, increased considerably. The development of India's industrial resources became a matter of military importance. To meet this exigency the Government established provincial industrial committees and a Munitions Board and appointed an Industrial Commission. With the end of war, however, even the halting proposals of the Industrial Commission were shelved. Even such industries as cotton, jute, iron and steel which had received a fillip during the war were allowed to languish.

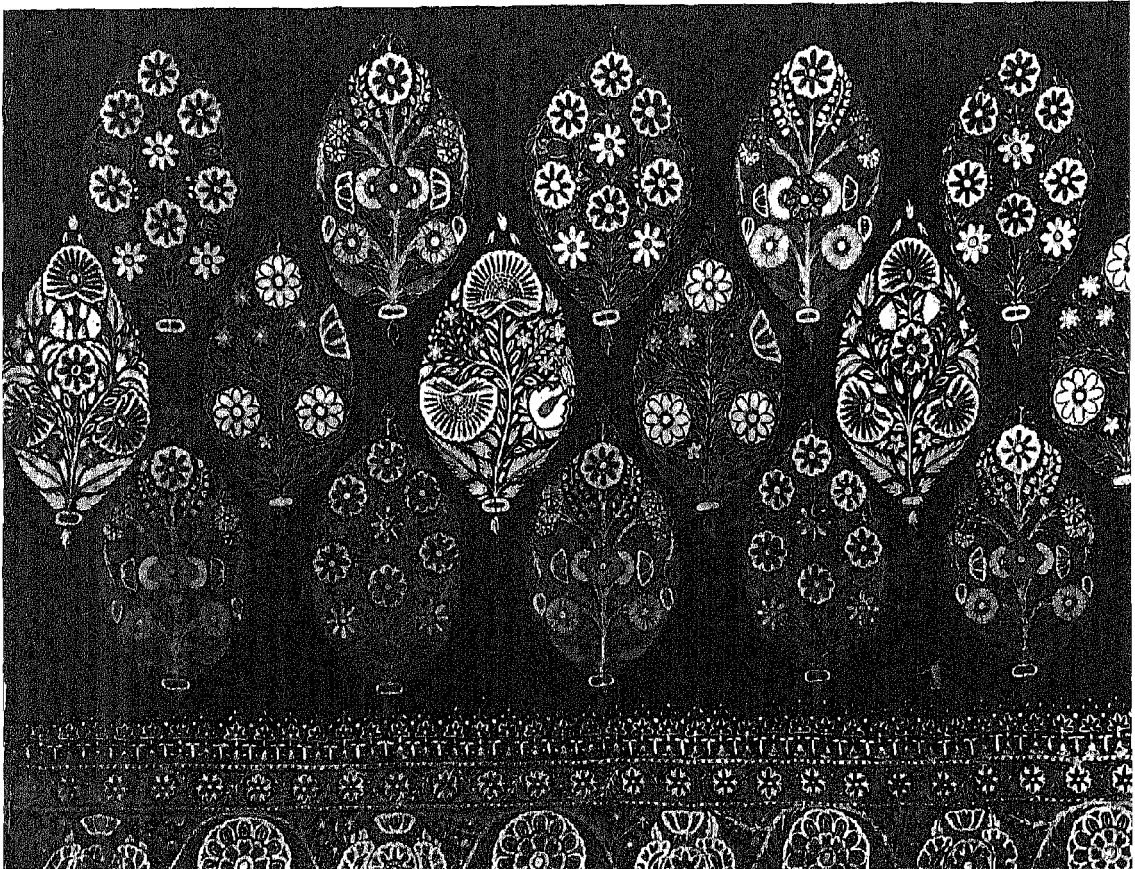
The next milestone in the industrial development of India was the Government's decision to protect industries. This policy was grudgingly accepted by the Government in 1923. Accordingly,

a number of industries like steel, textiles, sugar and matches were given protection. This helped them to expand rapidly. The national awakening also stimulated the growth of Indian industries. But the policy of imperial preference imposed on India by the Ottawa Agreements strongly militated against Indian industries. The tariff system was turned against Indian interests in order to assist "British industries to compete in the Indian market, while giving India in return the privilege of favoured rates for the sale of raw materials and semi-manufactures in the British market—an obvious attempt to revert to the pre-1914 status."

None the less, India made considerable industrial progress in the inter-war period; she came to be ranked among the first eight industrialized countries of the world. The production of cotton textiles and steel became large enough to meet nearly three-fourths of India's demand, while in consumers' industries like sugar, cement and matches, India had attained self-sufficiency.

The Indian economy, however, still remained lop-sided. Her industries could hardly support two per cent of her population. The weakness of the industrial structure of India was exposed during World War II when even such well-established industries as textiles, paper and leather failed to meet ade-

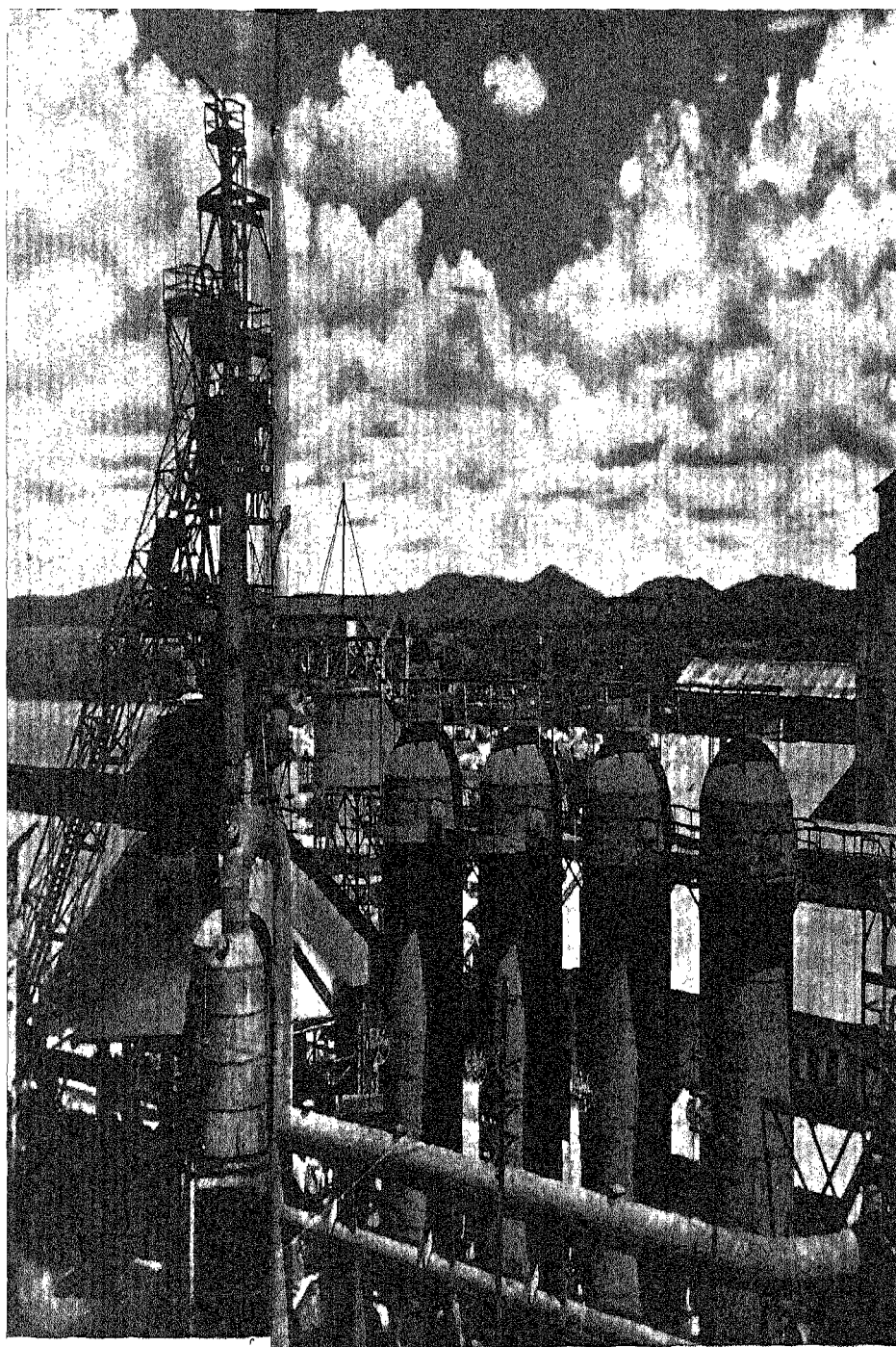
A 17th century silk saree



quately the requirements of the war because of their dependence on imports of such essentials as caustic soda, bleaching powder, soda ash and sodium carbonate.

World War II created an urgent demand for industrial products. The entry of Japan into the war, the bombing of British factories, the increasing menace of U-boats and the large-scale sinking of British ships forced the allies to turn India into the main supply base for the Middle and Far East. As a consequence, the index of industrial activity moved from 114.0 in 1939-40 to 120.5 in May 1945. The paid-up capital of joint-stock companies in British India increased from Rs. 2,885 million in 1939-40 to Rs. 3,293 million in 1943-44 and the number of workers from 1,751,137 in 1939 to 2,520,000 in 1944. The production of cotton piece-goods, paper, sugar, steel, tea, cement, chemical and metallurgical goods, drugs, leather manufactures, ammunition, machine tools, lathes, and engineering stores increased significantly while, for the first time, repairs of aircraft, ships and cars were undertaken in the country. Certain new industries, such as the locomotive, automobile, bicycle, sewing machine, diesel engine, textile machinery, ball and roller bearing and rayon industries, also came into existence.

Although the war created favourable conditions for industrial development, at the end of it, India was still not adequately industrialized. For a country of her size and needs, producer goods industries in India were too few and



The Iron and Steel Works at Jamshedpur

far between. Even after 1946, industrial output in India was thus far below capacity. The general decline in production set up a disparity between supply and demand, particularly in the essential goods industries. Raw materials were in short supply and there was a persistent rise in the costs of production. Consequently, the rise in personal incomes was more than offset by the increased cost of living. An inflationary situation had set in with all its attendant hardships of labour unrest and middle class improvement.

Consequent on partition, the jute mills in and around Calcutta on the one hand and the jute-growing areas in East Pakistan on the other found themselves separated by the new international frontier. Similarly, the textile mills of Bombay and Ahmedabad were dependent on Pakistan for supplies of raw cotton. The Government felt that India should not be wholly dependent on imported supplies of raw materials to feed her vital industries. Efforts were immediately made to grow more cotton and jute in the country.

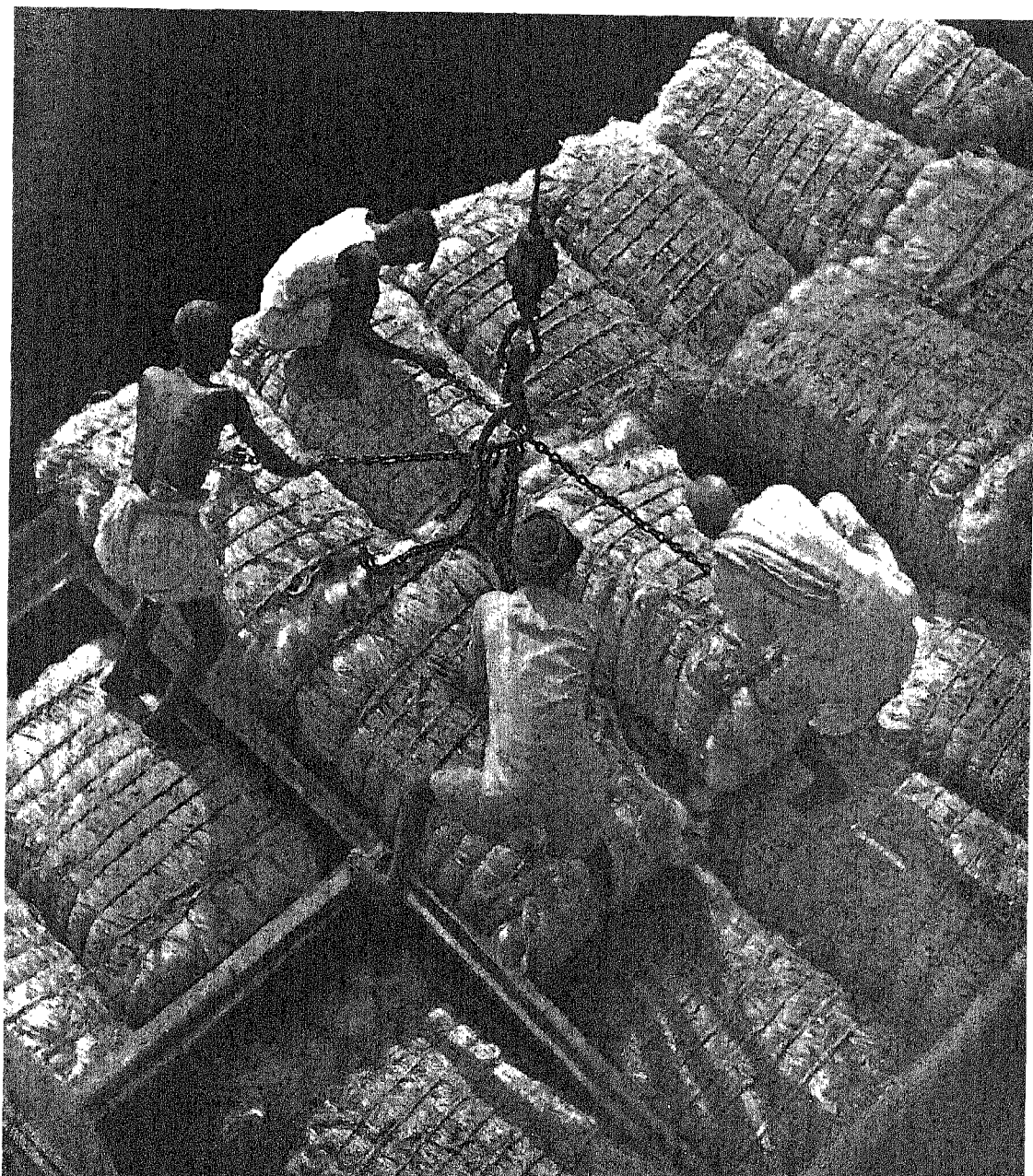
Industrial Policy

The Government's industrial policy of 1948 sought to step up production and improve the efficiency and standards of management in industry. It had three main objectives, namely, industrial planning, regulation of industries and their development and protection. The spheres of the operation of States and private enterprise were defined. The industries were classified under the following categories :

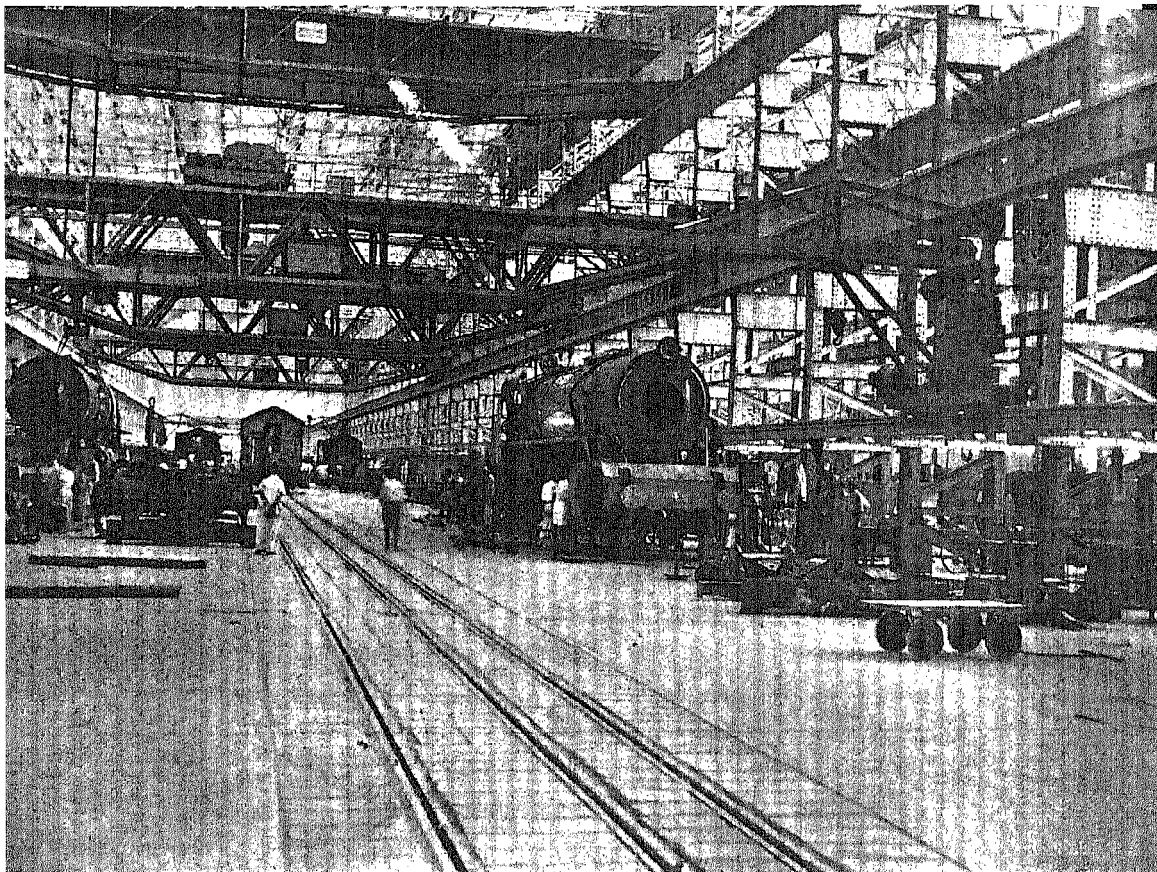
1. Arms and ammunition industries, atomic energy, river valley projects and railways were declared to be the monopoly of the State.
2. Coal, iron and steel, aircraft, telephone, telegraph, wireless, ship-building and mineral oils were declared to be the responsibility of the State. The State reserved to itself the right to regulate and ensure their planned development. The existing private undertakings were to continue in the hands of their owners for at least a decade, but the initiative for establishing new undertakings was to lie with the State.
3. The textile, jute, wool, leather, cement, sugar and tea industries were to be operated by private enterprise. The right to regulate and control certain important industries, will, however, vest in the Government.

The State-owned industries were to be managed by public corporations under the statutory control of the Central Government. As regards fiscal policy it was decided that tariffs should be so designed as to ensure freedom against unfair foreign competition without imposing unjustifiable burdens on the consumer. The taxation should be constantly reviewed with a view to encouraging savings and promoting investments.

The Industries (Development and Regulation) Act, which was passed by Parliament on October 12, 1951, marks the first effective step in the over-all planning for the industrial development



Unloading of jute



View of one of the assembly shops at the Chittaranjan Locomotive Workshops

of the country. It brought within the purview of the Union Government 37 industries of all-India importance and provided the machinery by which these industries could be developed and regulated in conformity with the National Plan.

The Act provides for the establishment of a Central Advisory Council to advise the Government on matters concerning the development of these industries and to establish Development Councils for one or more of these industries. The Act also provides for the registration of

existing industrial undertakings and the licensing of new undertakings. The Government has the power to order an investigation into any industry or industrial unit and to issue such directions as may be necessary. If the industrial undertaking continues to be mismanaged, the Government has power to take over the management of the undertaking. The Act applies only to factories with 50 or more workers, if they use power, or with 100 or more workers if they do not. Factories with a capital up to Rs. 100,000 have also

been excluded from the scope of the Act.

This Act came into force on May 8, 1952. A Central Advisory Council of Industries has been established consisting of 27 representatives of industry, labour, consumers and primary producers relating to the industries covered by the Act. Two Development Councils have been established, one for Heavy Chemicals (Acids and Fertilizers) and the other for Internal Combustion Engines and Power-driven Pumps, both Councils consisting of representatives of owners, technicians, labour and consumers in the respective industries.

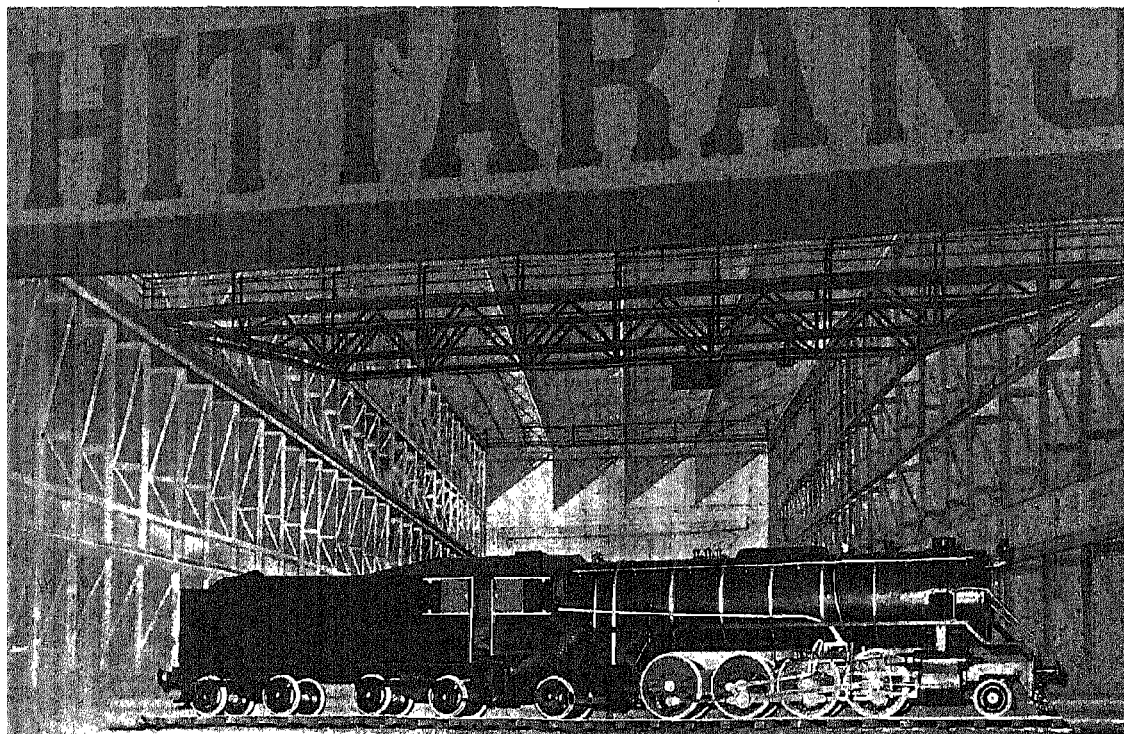
The procedure to be followed in regard

to the registration and licensing of industrial undertakings has been laid down in the Registration and Licensing of Industrial Undertakings Rules of 1952, which were promulgated on July 9, 1952. The registration and licensing are now in progress.

A Licensing Committee has been set up to examine applications for new undertakings and substantial expansions of the existing ones.

The Government has actively helped the growth of industries in the private sector. To finance the industrial development programmes in this sector, the Industrial Finance Corporation of

Model of a locomotive built by Chittaranjan Locomotive Works



चितराजन में 1,3,53 तक 54 एजिन बनाये जा चुके हैं।
इनमें से एक बाहर साइडिंग में प्रदर्शित किया गया है।
CHITTARANJAN HAS BUILT 54 WG CLASS LOCOMOTIVES UP TO 1,3,53.
ONE OF THESE IS ON DISPLAY IN THE ROLLING STOCK SIDING OUTSIDE

India was established in 1948. It affords financial assistance in the form of medium and long term loans to industrial concerns in India. During 1952, 33 applications for loans aggregating Rs. 47.8 million were sanctioned.

At the same time, the Government has helped industries to procure raw materials and capital goods from abroad. Nearly 43 industries are protected against foreign competition. The Government has also ensured the equitable distribution of vital commodities, such as sulphur and non-ferrous metals allotted to India by the International Raw Materials Conference. The other forms of governmental assistance include the collection of accurate and

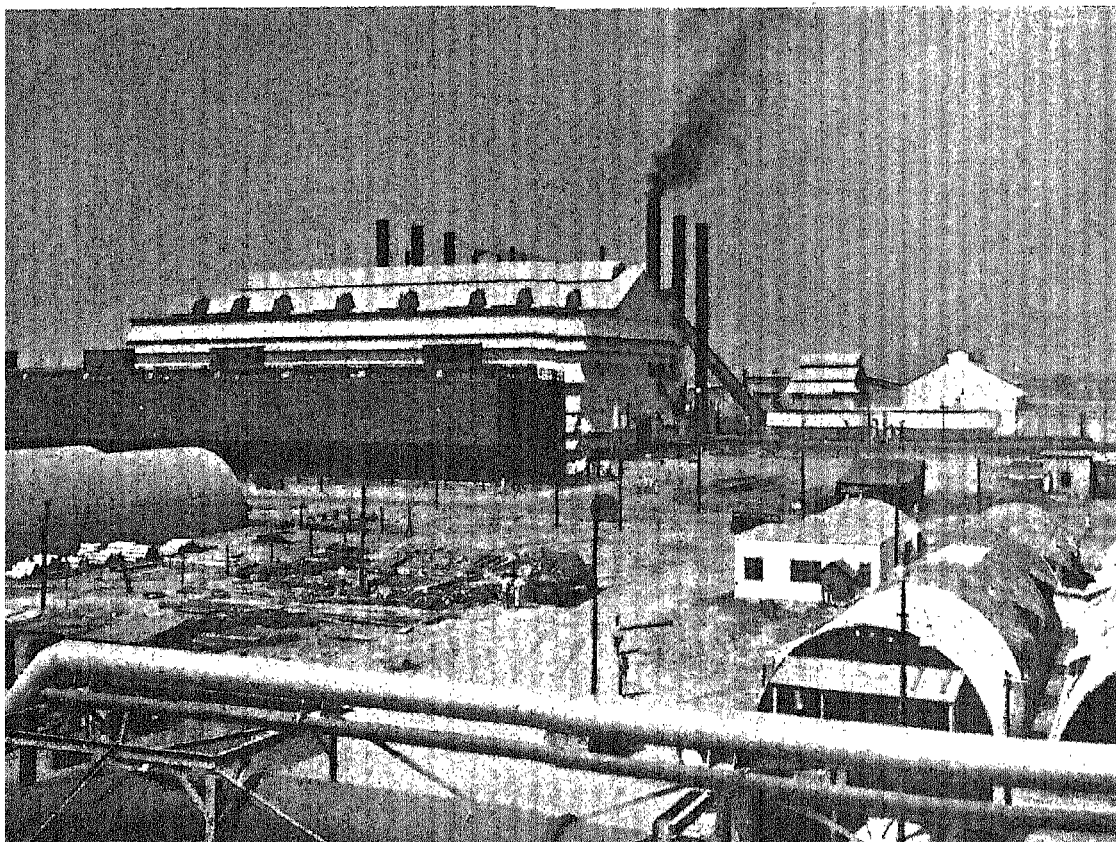
comprehensive statistical data, the development of national laboratories and the setting up of working parties and target committees.

Moreover, the Indian Standards Institution was established in 1947 to draw up and enforce standards.

The I.S.I. (Certification Marks) Act passed in March 1952 confers statutory powers on the Institution for prescribing quality standards of Indian manufacturers. So far the Institution has approved 1,051 items.

The Five Year Plan does not contemplate the nationalization of existing enterprises. In fact, it recognizes that private enterprise can make an important contribution to the deve-

Sindri Fertilizer Factory, Bihar



*Machine Tool Prototype
Factory, Ambernath*



lopment of the economy. Steps are being taken to ensure that private entrepreneurs accept new obligations towards the worker, the investor and the consumer and maintain a high standard of efficiency and integrity.

PUBLIC SECTOR

A few industrial units of India are working in the public sector, i.e., they are owned and managed by the Government of India. They are the Sindri Fertilizers and Chemicals Ltd. at Sindri (Bihar), the Machine Tool Factory at Jalahalli (Mysore State), the Dry Core Paper Insulated Telephone Cable Factory at Rupnarainpur (West Bengal), the Penicillin Factory at Pimpri (Bombay State), the D.D.T. factory at Delhi, the National Instruments Factory at Calcutta and the Shipyard at Visakhapatnam (in South India). In most of these concerns, which are under various stages of construction, the participation of foreign firms has been secured mostly for the purpose of technical advice. International public

organizations like WHO and UNICEF are co-operating with the Government of India in financing the Penicillin and D.D.T. projects partly.

The Government has given liberal concessions to some foreign oil companies for setting up oil refineries in India.

Sindri Fertilizer Factory

The Sindri factory is owned by the Central Government and managed by a private limited company incorporated under the Indian Companies Act called the Sindri Fertilizers and Chemicals Ltd. The authorized capital is Rs. 300 million. The factory is producing ammonium sulphate by the gypsum process. The installed capacity is 350,000 tons per annum. Initial production commenced on the midnight of October 30, 1951.

The capital invested is wholly Indian and so is the management; the foreign assistance was only in the nature of technical help in the erection of the factory. A firm of American experts was, however, employed as consultants

to prepare designs for construction.

A consortium of U.K. chemical manufacturers were also employed;

- (i) to supply a specialized plant for the factory in accordance with the consultant's specifications; and
- (ii) to act as agents to the Government of India in the procurement of the remaining plant and machinery and erect the factory under the supervision of the consultants.

The consultants have also agreed to train Indian personnel abroad in the operation of plants similar to those installed in the factory. There are three foreign nationals holding important posts in the operational and maintenance side of the factory. They have been recruited on a contract basis.

Machine Tool Factory

Another Central Government concern is the Machine Tool Factory which is being erected at Jalahalli near Bangalore. Its estimated capital cost is about Rs. 100 million. Under an agreement concluded between the Government of India and Messrs. Oerlikon Machine Tool Works of Switzerland, technical assistance will be provided by the latter.

The Machine Tool Prototype Factory which was opened recently at Ambernath will design special types of machine tools and machines for use by ordnance factories.

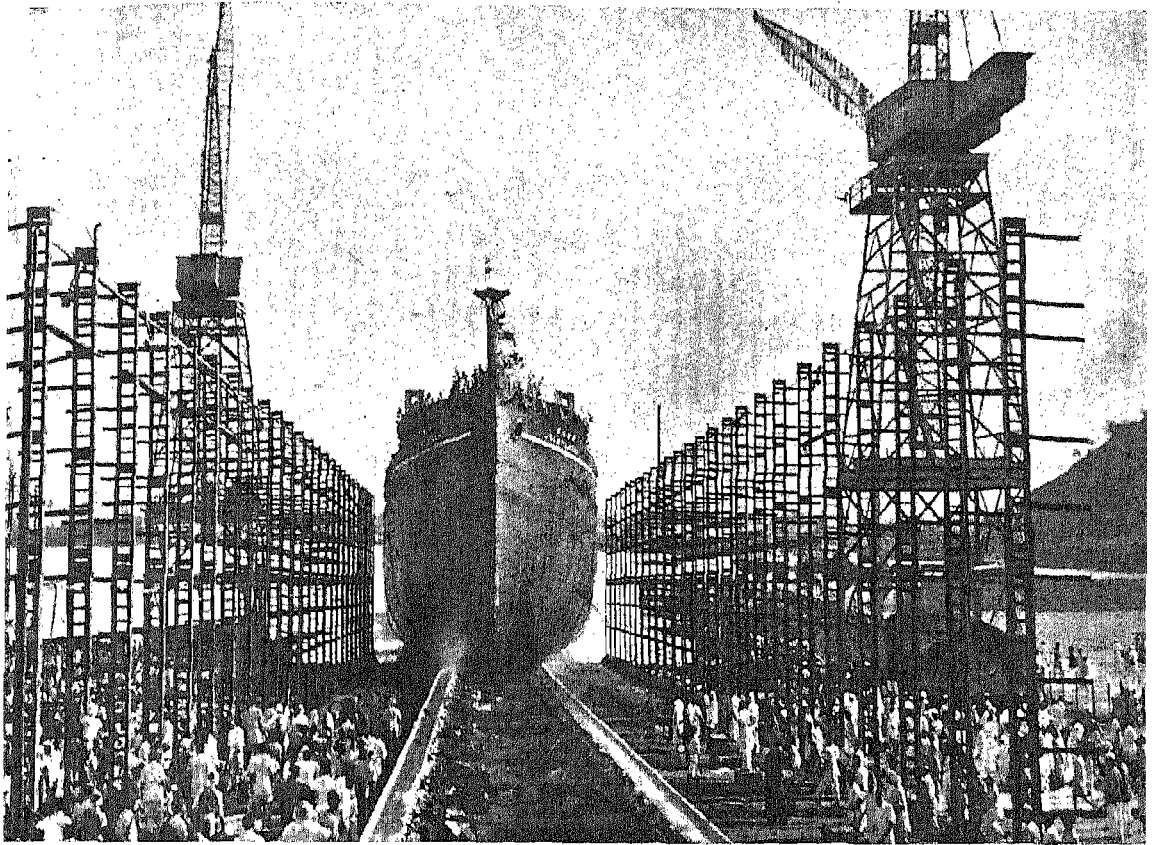
Cable Factory

The Telephone Cable Factory will manufacture dry-core paper-insulated telephone cables at an estimated capital

cost of Rs. 11 million. A Technical Assistance Agreement has been concluded between the Government of India and Messrs Standard Telephone and Cables Ltd. of the U.K. According to the Agreement, the foreign consultants will prepare drawings, designs, estimates, etc. for the erection of the factory, supervise its erection, provide engineers at their cost during the initial construction and take technical responsibility for erecting the machinery and put the plant into service. They will also supply the technical "know-how," give licences for patents, etc. to the Government and train Indian personnel in their works in the U.K. They have not contributed anything towards the capital of the factory and will not participate in its management.

Chemical Factories

Two other factories are being set up under Government management, one for the manufacture of penicillin and the other for D.D.T. They are being set up in collaboration with WHO and UNICEF. As regards the former, an agreement has been concluded between the Government of India and the above organizations under which the former will provide the land and buildings, administrative officers, other services and working capital at an estimated cost of Rs. 13 million. Of the latter, UNICEF will supply all the imported equipment to the value of \$850,000 and WHO will arrange and provide technical assistance involving an expenditure of \$350,000. The Government of India will be exclusively responsible for



Launching of Jala Panikhi

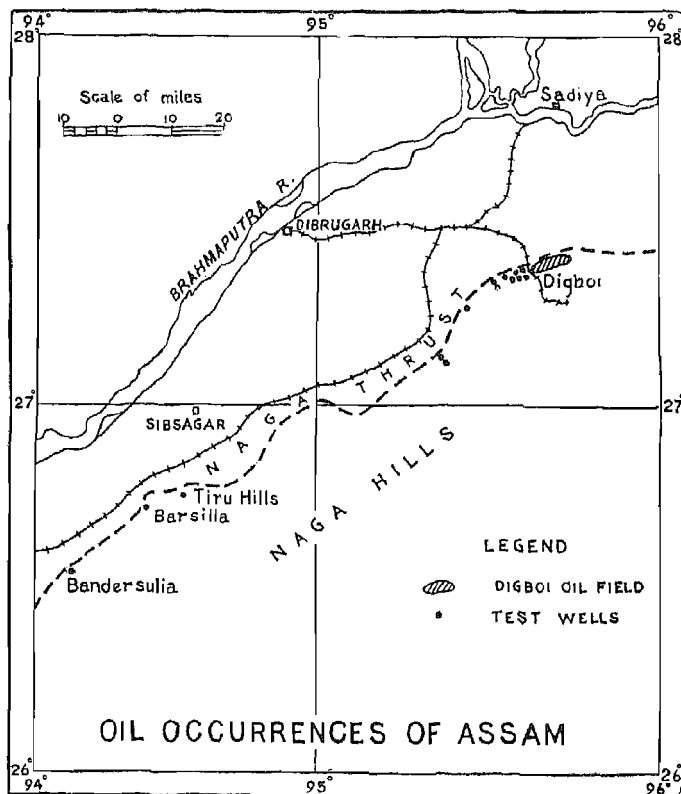
the management of the factory. The total estimated cost of these is Rs. 18.6 million.

As regards the D.D.T. project also, a formal agreement with the above organizations has been concluded by the Government of India. Under this UNICEF have agreed to supply all the imported equipment to the value of \$250,000 and WHO will provide all technical assistance involving an expenditure of \$100,000. The land and buildings, administrative offices, other services and working capital will be provided by the Government of India

at an estimated cost of Rs. 2.45 million. The management will, of course, vest in the Government.

Other Industries

The National Instruments Factory is another concern owned and managed by the Government. This is a century old organization of the Government of India, which is run more or less on the lines of the ordnance factories. There is no foreign participation either in the capital or the management of the factory; but one foreign technician has been employed on a contract.



An oil refinery

Hindustan Shipyard Limited

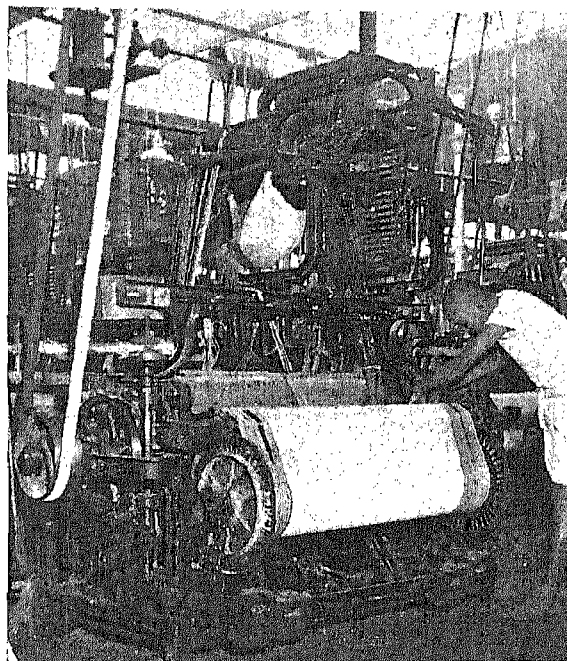
The Hindustan Shipyard Ltd., is an unique instance in which a going concern has been taken over from the private sector in national interests. The authorized capital of the company is Rs. 100 million. The present paid-up capital is Rs. 31 million, shared between the Government of India and Scindias Ltd., in the ratio of 2:1. In July 1952, the Hindustan Shipyard Ltd. entered into a five-year agreement for technical aid co-operation with La Societe Anonyme des Ateliers de la

Loire of Paris, a French firm of naval engineers. Besides providing the services of experts and the know-how of ship-building, the French firm will help in obtaining the necessary steel and machinery from abroad.

Petroleum Refineries

The agreements on the proposed erection of petroleum refineries in India concluded between the companies concerned and the Government of India present certain interesting features, inasmuch as they indicate the willing-

Weaving department
of a textile mill



ness of the Government of India to offer generous terms to prospective foreign investors.

It is proposed to locate two of the refineries in Bombay. One of these will be constructed and operated by Messrs. Standard Vacuum Oil Company of New York, who will form, for this purpose, a public company incorporated in India under the Indian Companies Act. The other will be similarly constructed and operated by the Burmah-Shell Group of Companies. They will also promote an Indian public company. The capital cost of the former will be about \$32 million (about Rs. 155 million) and of the latter about £17.25 million (Rs. 230 million), exclusive of the working capital [which will be about \$4.4 million (Rs. 2.2 crore) in the case of Standard Vacuum and £1.5 million (Rs. 2 crores) in the case of

Burmah-Shell]. The larger part of this amount of about Rs. 285 million will constitute a net addition to the capital assets of India, in the shape of heavy plant and machinery. This is the first instance of foreign capital on such a large scale being invested in India in a modern heavy industry.

The Standard Vacuum Company will offer to Indian investors 25 per cent of the issued capital (Rs. 30 million) in the form of cumulative preference stock of the refinery company which they will be incorporating in India; the ordinary shares will be owned by them. In addition, they will raise a loan in India to the tune of about \$6-8 million (Rs. 30-40 million) against debentures. They will also supply the Indian Company, on a loan basis, with the funds required for the purchase abroad of machinery, equipment and services. Of

the total capital of about Rs. 250 million to be invested by the Burmah-Shell Group, Rs. 230 million will be made available by the Group either as capital for the Indian Company or partly as capital and partly as loan, and Rs. 20 million will be offered to Indian investors in the shape of cumulative preference shares (which will be raised to Rs. 30 million if so desired by the Government of India).

Under both the projects petroleum will be refined from imported crude material. The Standard-Vacuum Refinery is expected to commence operation in July 1954 and the Burmah-Shell Refinery not later than January 1956.

Negotiations are in progress for the setting up of a third refinery on the east coast of India by the Caltex Company.

MAJOR INDUSTRIES

(PRIVATE SECTOR)

Cotton Textile

The production of cloth declined from 40,300 million yards in 1948 to 3,600 million yards in 1950. The handloom industry, which produces about 1,000 million yards annually, has also had to function in the face of severe handicaps since August 1947. The Government took measures to improve the situation and imposed a number of restrictions to ensure an equitable distribution of raw cotton and yarn for both the industries. With the assistance of the Government, the output of cotton textiles increased and (both cloth and yarn) reached a

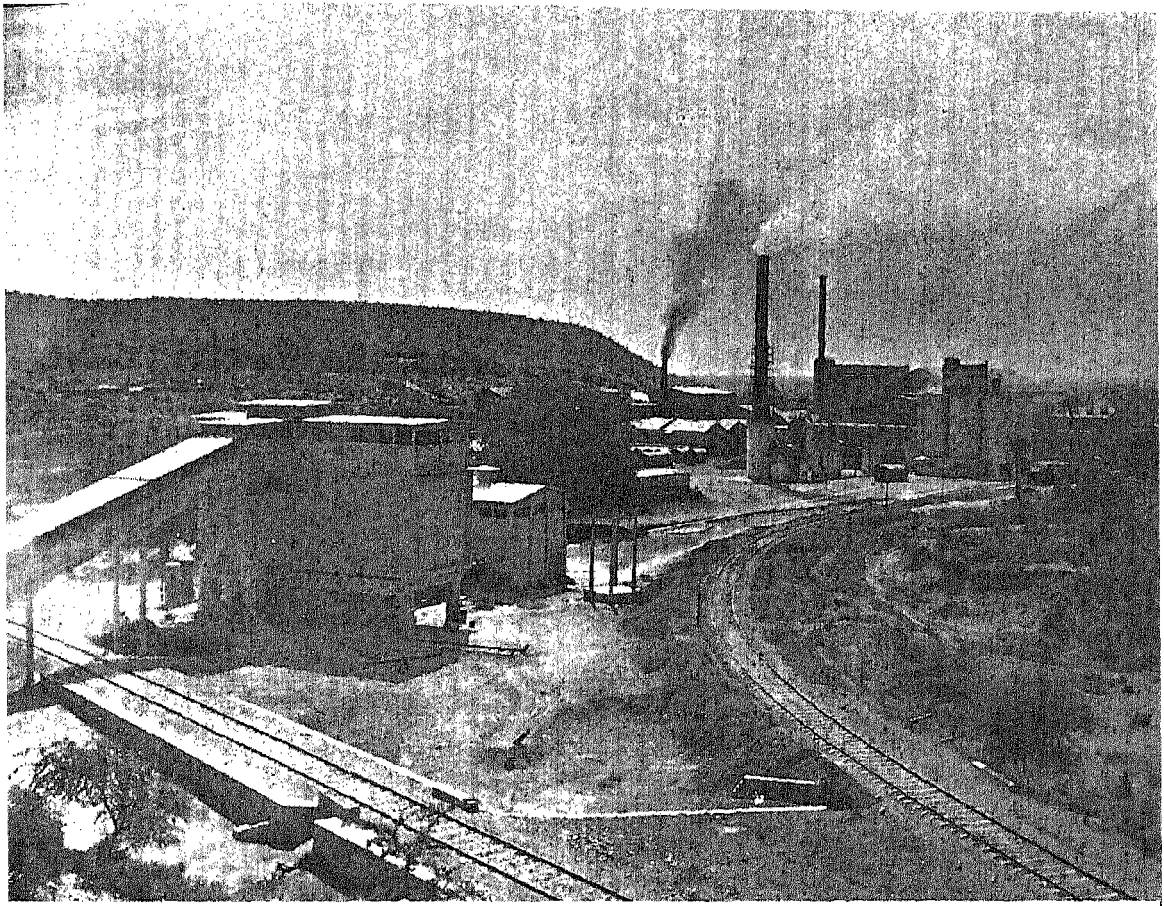
new all-time record in 1952. As against 4,066 million yards of cloth and 1,304 million lb. of yarn produced in 1951, the production in 1952 was 4,608 million yards and 1,448 million lb. respectively.

Jute

After partition, India produced only 1.65 million bales of jute against her normal consumption of 6.5 million bales. Negotiations to secure raw jute from Pakistan on reasonable terms did not succeed. The Government of India therefore encouraged the growth of jute in the country. In 1951-52, the crop yielded 4.67 million bales of quality jute in addition to certain inferior varieties estimated at 0.7 million bales. The Government further imposed price control on raw jute and jute products and reduced export duties on jute manufactures, thus stimulating the export of jute goods. Consequently, hessian bags from India became cheaper than cotton bags in the U.S.A. where India's jute goods enjoy a large demand. There has, however, been a rise in the production of jute manufactures in 1952. The total production of all varieties during 1952 was 978,000 tons as against 909,200 tons in 1951.

Iron and Steel

It is estimated that India needs 2.5 million tons of steel annually for domestic consumption while indigenous production amounts only to about a million tons. Since 1950, even imports, which were formerly used to make good the deficit, have steeply declined owing to



General view of one of the A.C.C. cement factories

high prices and international restrictions on export.

There are three main producers of steel in the country. The Mysore Iron and Steel Works, the Tata Iron and Steel Co. Ltd., and the Steel Corporation of Bengal, in association with the Indian Iron and Steel Co. The Steel Corporation and Indian Iron and Steel Co. have been merged with effect from January 1, 1953, in accordance with the Steel Companies Amalgamation Act of 1952. All these units are expected to expand their

capacity during the period of the Five Year Plan with the active assistance of the Government. On the completion of all these expansion schemes the country's capacity for the production of finished steel is expected to increase from one million tons to 1.65 million tons. There will, however, still remain a deficit of about one million tons. The Planning Commission has recommended the establishment of a new iron and steel plant in the public sector at a total cost of Rs. 800 million. This will have

a productive capacity of about 800,000 tons of pig iron and 350,000 tons of steel. By 1955-56, the new project is expected to produce about 350,000 tons of pig iron.

Coal

There are about 100 coal-fields in India, mostly privately owned. Only 11 of these belong to the Government. The Planning Commission has made a number of recommendations on survey and research with a view to stepping up the production of coal. One of them concerns a physical and chemical survey by the Geological Survey of India in collaboration with the Bureau of Mines. The survey has already started and five regional coal survey stations have been established.

After 1947 this industry has shown an improvement. Coal production rose from 29.8 million tons in 1948 to 31.4, 31.9 and 34.3 million tons in 1949, 1950 and 1951 respectively. It reached the record figure of 35.92 million tons in 1952.

Cement

The cement industry, a major industry in the country, has received a fresh impetus from the many building schemes and projects undertaken since independence.

In 1947, India produced only about 1.56 million tons of cement. Within two years, 21 cement factories had come into existence and between them they produced 2.6 million tons of cement in 1950. In the following years, some of the factories produced to full capacity

and the production of cement rose to 3,195,600 tons in 1951 and 3,512,974 tons in 1952.

Salt

The partition of the country affected the salt industry and during 1947-48 India, for the first time, imported 18 million maunds of salt. India has now not only become self-sufficient in salt but she is exporting it in sizable quantities to Japan and Pakistan. The production of salt rose from 74.3 million maunds in 1951 to 80.4 million maunds in 1952 and during 1952 India exported 7.24 million maunds of salt.

On the recommendation of an expert committee, a survey of the Mandi rock salt deposits has been undertaken and it is proposed to exploit them at a cost of Rs. 10 million.

Chemicals

The Chemical industry is of recent origin in India. India is now producing bromine, potassium bromide, hydro-quinine, anti-tubercular drugs, PAS and thio-semiearbezone, anti-leprosy drugs, novitron, cellophate and tissue paper. The indigenous production of plastic-coated leather cloth can now meet the requirements of the country's automobile industry. The production of ebonite rubber components for automobiles and good quality Baker's Yeast are new ventures. A beginning has also been made in the production of glucose.

Formerly, India used to import chemicals, but now the import of certain chemicals, such as drugs and patent medicines, has been stopped. Many

chemicals like glycerine, bichromates, magnesium chloride, potassium bromide, etc., are being exported to the U.K., the U.S.A. and other countries. India is also exporting certain other drugs to the Middle and Far East.

The Five Year Plan has laid emphasis on fertilizers, heavy chemicals and power alcohol and pharmaceuticals.

Engineering Industries

Engineering industries were encouraged by the Government during World War II. India thus began to produce bicycles, storage batteries, small electrical motors, lamps, cables, wires, etc. Alumina, lead, antimony and small tools are now being produced in the country. India is at present self-sufficient in a variety of articles like electrical motors, batteries for motor cars, ceiling fans, conduit pipes, metal sheets for utensils, etc.

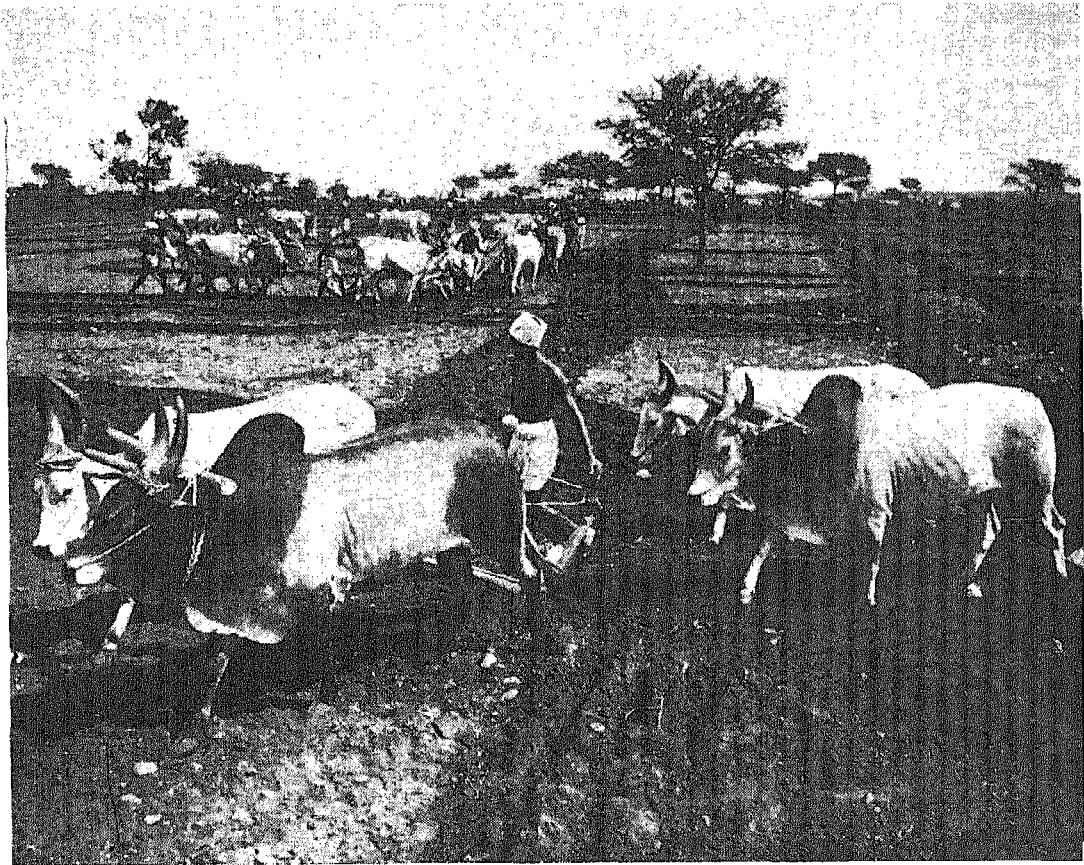
New Industries

The following are also being produced in India :

1. Industrial Boilers
2. Auto Jiggers
3. Card and Gill Pins
4. Interlock Knitting Machines
5. Flat Products of 3S and 57S

Aluminium Alloys containing Manganese and Magnesium

6. Wood Planing Machines (12 in. by 4 in.)
7. Power Press
8. Ground Thread and Relieved Taps
9. Adjustable Reamers
10. Tangential and Coventry Chasers
11. Pilot Models of Theodolites
12. Planimeter
13. Sextant Nautical
14. Fluorescent Tubes
15. Radio Components
16. Pick-up Heads for Radio Gramophones
17. Cylinder Blocks for Automobiles
18. Pistons for Internal Combustion Engines
19. Industrial Sewing Machines
20. Bicycle Spokes
21. Watch Cases
22. Ferric Chloride
23. Benzene Hexachloride
24. Calcium Carbide
25. Synthetic Resin Laminated Sheets
26. Certain anti-bacterial drugs (Sulfa-pridine, sulfa-thiazol and sulfa-diazine), Isonicotinic acid Hydrazide (an anti-T.B. drug)
27. Certain dyes for dyeing wool, silk and cotton textiles.



Sturdy plough cattle for better farming

CHAPTER V

FIVE YEAR PLAN

The war and following it the partition of the country threw India's integrated economy out of joint. To assess the material, capital and human resources of the country and formulate a plan for

the most effective and balanced utilization of the country's resources, the Government appointed the Planning Commission in March 1950. Before, however, the Commission could submit

its report, it was called upon to draw up a six-year plan of economic development for India as part of the Colombo Plan. In fact, this constituted the first blue-print for prosperity after independence. The first draft of the Five Year Plan was published on July 9, 1951.

The Five Year Plan published in its final form in December 1952 aims at raising the standard of living of the people and offering them increased opportunities for a richer and more varied life. It seeks (1) to utilize more effectively the human and material resources available to the community with a view to obtaining from them a larger output of goods and services and (2) to reduce inequalities of income, wealth and opportunity.

According to the Commission, the key to economic progress in this country is capital formation. The first five years will consequently be a period of preparation and painful gathering of resources. In formulating the Plan, the Commission had to make choice between two alternatives. They had to choose either a moderate increase in the standard of living in the near future with relatively small additions to capital equipment, or a substantially higher standard of living, perhaps for the next generation, through a process of rapid capital formation by subjecting the present generation to continued austerity and privation. Hence, in the immediate future, the people of India will need to exercise a certain measure of restraint on current consumption if the country is to find the resources to build up

capital equipment for the future.

The Commission believes that it will be possible to increase the annual investment from the present level of five per cent of the national income to about 6.75 per cent at the end of five years. It also hopes that it may be possible to supplement the resources of the country by external aid to some extent. The rate of investment is expected to rise to 20 per cent of the national income by 1967-68 and *per capita* income double by 1978. As the rate of economic development increases with consequent diversification of economic activity, opportunities for employment may also increase.

As the resources available to the country for development are very modest in relation to its needs, the Commission had to draw up a list of priorities. For the five year period, the Plan lays emphasis on agriculture, including irrigation and power. Considerable provision is made for investment in this sector, with a view to obtaining substantial increases in the production of food and raw materials which will provide the wherewithal of industrial development in the future. A programme of community development which aims at an intensive all-round development of selected rural areas is also included in the Plan.

Since the bulk of the investment in agriculture will come from the State, its contribution to industrial development will be correspondingly limited. Progress in this sector will therefore depend largely on private effort and investment. Meanwhile, the efforts of

the State will be concentrated on the provision of basic services like power and transport and on basic industries of national importance for which private enterprise may not be forthcoming in sufficient measure.

Although the prime emphasis is on increasing production, the Commission feels that no plan can succeed unless it endeavours to improve human material. The Plan therefore makes some provision for social services, but in this field there is probably a considerable scope for direct community effort. Specific financial provisions have accordingly been made to evoke and assist such effort. In view of the widespread existence of under-employed manpower in the country, the Commission gives high priority to schemes for the mobilization of local labour for local development.

The Commission feels that the objective of reducing economic inequalities can be fulfilled without recourse to methods, involving violent upheaval in society, which are inconsistent with the basic premises of democratic planning. For instance, the abolition of *zamindari* and land reforms seek to eliminate large inequalities in holdings. Fiscal measures, including death duties, can be used further to reduce inequalities of wealth without retarding private initiative, individual savings and capital formation. The expansion of the public sector and the growing regulation of the private sector should also restrict inequalities of wealth and income.

The Plan proposes an outlay of

Rs. 20,690 million in the public sector. The particulars of expenditure are as follows :

	(Millions of rupees)
Agriculture and Community Development	3,610
Irrigation	1,680
Multi-purpose Irrigation and Power Project	2,660
Power	1,270
Transport and Communications	4,970
Industry	1,730
Social Services	3,400
Rehabilitation	850
Others	520
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	20,690
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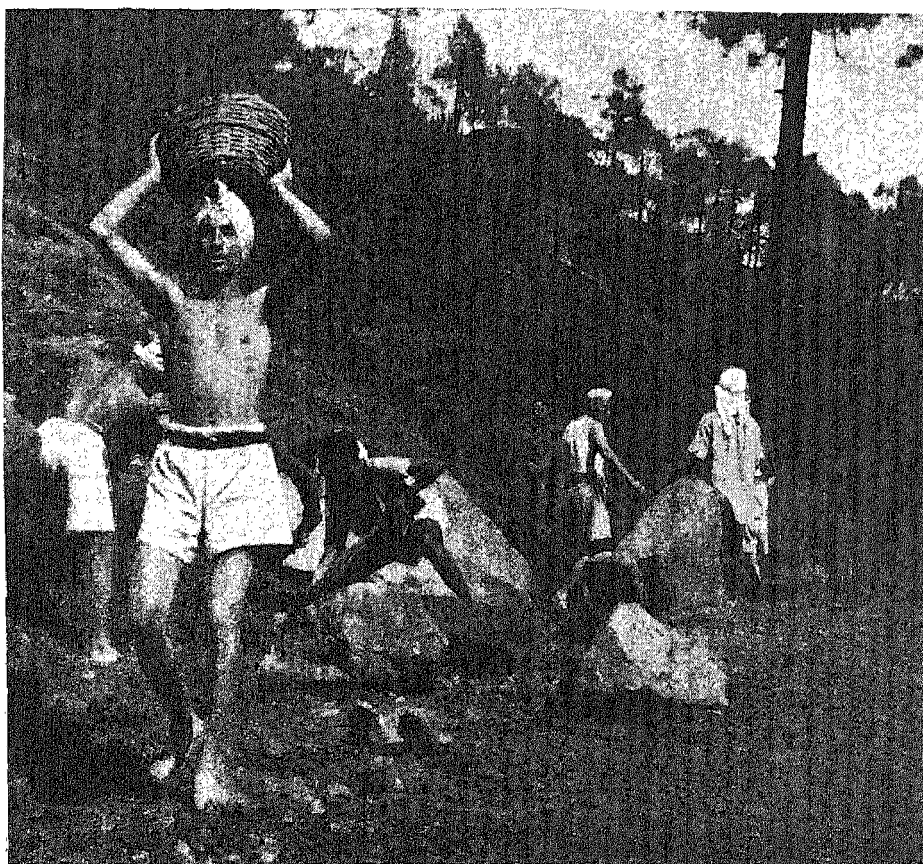
The distribution of the total outlay as between the Centre and the State Governments will be :

	(Millions of rupees)
Central Government (including railways) ..	12,410
States Part A	6,100
" " B	1,730
" " C	320
Jammu & Kashmir	130
	<hr/>
	20,690
	<hr/>

The salient features of the development programmes, both in the public and private sectors, are given in appendices.

Agricultural development programmes include live stock improvement, forests and soil conservation and co-operation and village panchayats. Out of a total outlay of Rs. 3,610 million, Rs. 1,840





Road building by voluntary workers

million are for agriculture, about Rs. 1,000 million for Community Projects and rural development, Rs. 220 million for animal husbandry and dairying, and Rs. 120 million for forests and soil conservation.

Most of the schemes for agricultural development are sponsored by the State Governments. The main role of the Central Government is to co-ordinate their programmes and assist them. The Central Government proposes to complete the present programmes of the Central Tractor Organization and to

establish a national extension organization. It will also seek to further schemes for livestock improvement, soil conservation, training and experiments in co-operative farming.

The detailed programmes for increasing the output of foodgrains, cotton, jute, sugar-cane and oil-seeds, which were formulated first in consultation with the State Governments in 1950-51, have been strengthened by the additional provision of Rs. 300 million for minor irrigation. This is designed to ensure the achievement of the

original target of 7.2 million tons of additional foodgrains. With this extra provision of Rs. 300 million, 11.2 million acres are expected to benefit from minor irrigation schemes at a cost of Rs. 770 million. The programmes of land reclamation, (for which Rs. 250 million are provided in the State Plans and Rs. 40 million in the Central Plan on account of the Central Tractor Organization) aims at the reclamation of about 7.4 million acres of land. Additional production is also expected from the increased use of fertilisers and improved seeds. The targets of production for 1955-56 represent an increase of about 14 per cent over the level of 1949-50 in the case of foodgrains, 44 per cent in cotton, 63 per cent in jute, 13 per cent in sugar-cane, and 8 per cent in oil-seeds.

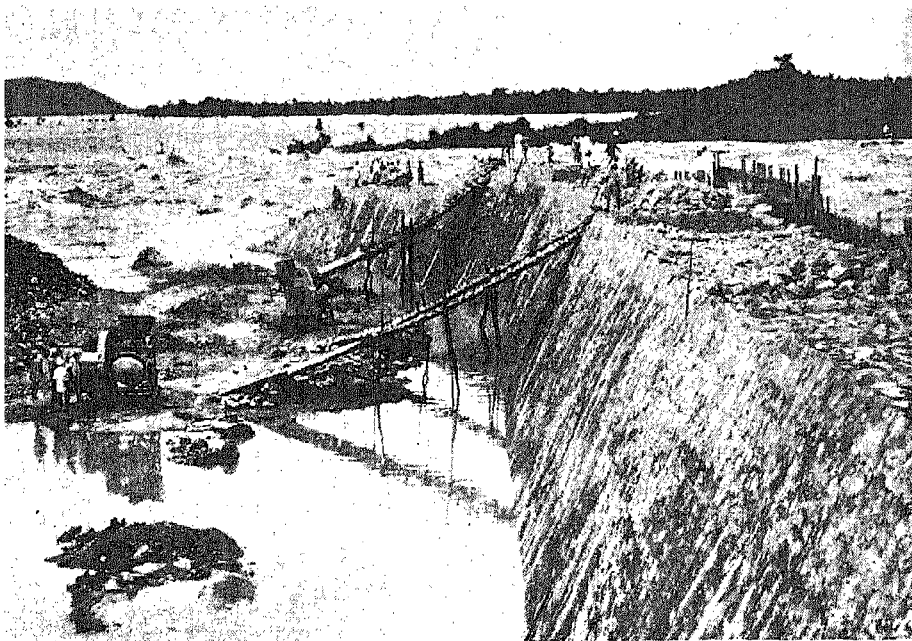
The Community Development Projects, which are conceived primarily as a programme of intensive development of selected areas, will also contribute to raising agricultural production. Fifty-five Community Projects have already begun functioning. They seek to mobilize local man-power for a concerted and co-ordinated effort to raise the whole level of rural life by improving methods of cultivation, encouraging the use of improved seeds and fertilizers, building roads with the aid of free labour, adopting elementary public health measures and improving existing facilities of training for artisans. The main emphasis is necessarily on improving the level of agricultural productivity and therefore the bulk of the projected expenditure is devoted to the provision of irrigation, land development and extension services. These

projects are also expected to supplement the meagre earnings of cultivators by evolving supplementary occupations.

There is also a scheme for a national extension service for agricultural development. A provision of Rs. 30 million has been made for this in the Plan and a sum of Rs. 150 million for local development works. This is expected to encourage local initiative and enable the Plan to arouse widespread interest in the community. A sum of Rs. 150 million has been earmarked for organizing relief activities in scarcity affected areas on developmental lines.

Eight irrigation projects (including multi-purpose projects) costing more than Rs. 50 million each are included in the Plan. In addition, there are 15 schemes costing between Rs. 10 million and Rs. 50 million each, 21 schemes costing between Rs. 5 million and Rs. 10 million each, and 17 schemes costing between Rs. 1 million and Rs. 5 million each.

The programme for irrigation and power is based primarily on projects initiated earlier. The total expenditure on such projects is estimated at Rs. 7,650 million of which Rs. 1,530 million have already been incurred. During the five year period, it is proposed to spend Rs. 5,180 million on these schemes, leaving about Rs. 1,000 million to be spent subsequently. It is estimated that within this period of the Plan these projects will irrigate an additional area of 8.5 million acres and generate 1.1 million kw. of additional power. On completion, the total additional area irrigated would amount



Hirakud Project. Left flank wall under construction

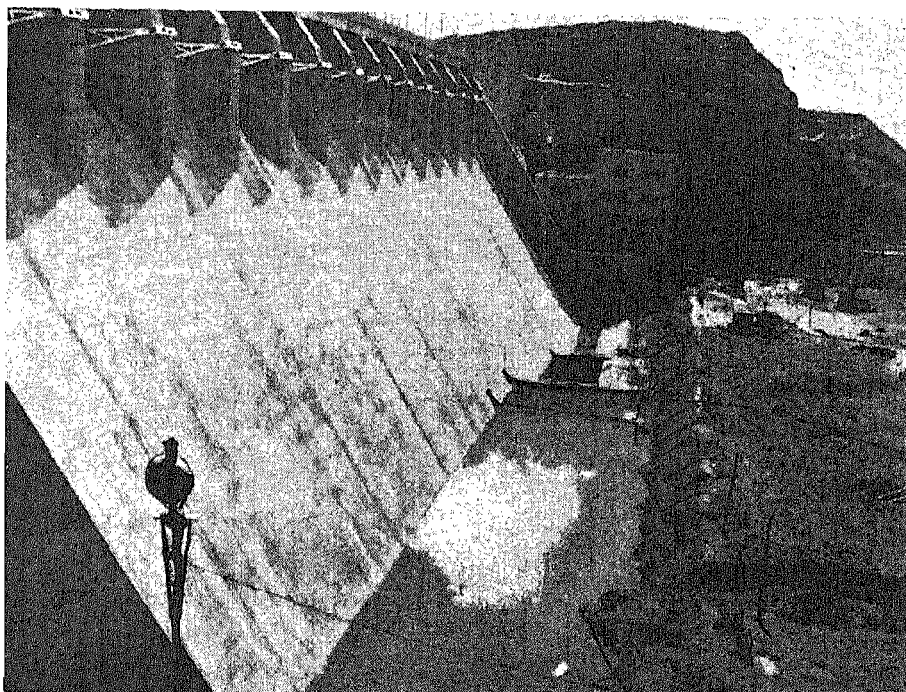
to 16.9 million acres and the additional power generated would be 1.4 million kw. The Plan contemplates no new development until 1954-55, when work is proposed to be started for the construction of five new irrigation and power projects estimated to cost over Rs. 2,000 million on completion. A provision of Rs. 400 million has been made for this purpose. These projects form part of a long-term programme intended to add, within the next 20 years, 40 to 45 million acres to the area under irrigation and 7 million kw. to the power generating capacity.

The extension projects of private electricity undertakings are expected to add 166,000 kw. of installed capacity. A provision of Rs. 270 million has also been made for the electrification of rural areas mainly in the States of

Madras, Mysore, Travancore and Cochin.

The Plan for industrial expansion presupposes a mixed economy in which Government intervention is restricted to a few basic projects of national importance, involving heavy investment, and the major part of the field is left open to private enterprise. Emphasis is laid on the expansion of capacity in industries, manufacturing capital and producer goods and on fuller utilisation of existing installed capacity in the case of a large number of other industries. Considerable importance has also been attached to the establishment of industrial units which would lend strength to the industrial structure by rectifying the existing lacunae and drawbacks.

The total outlay on industries during the period of the Plan is estimated at

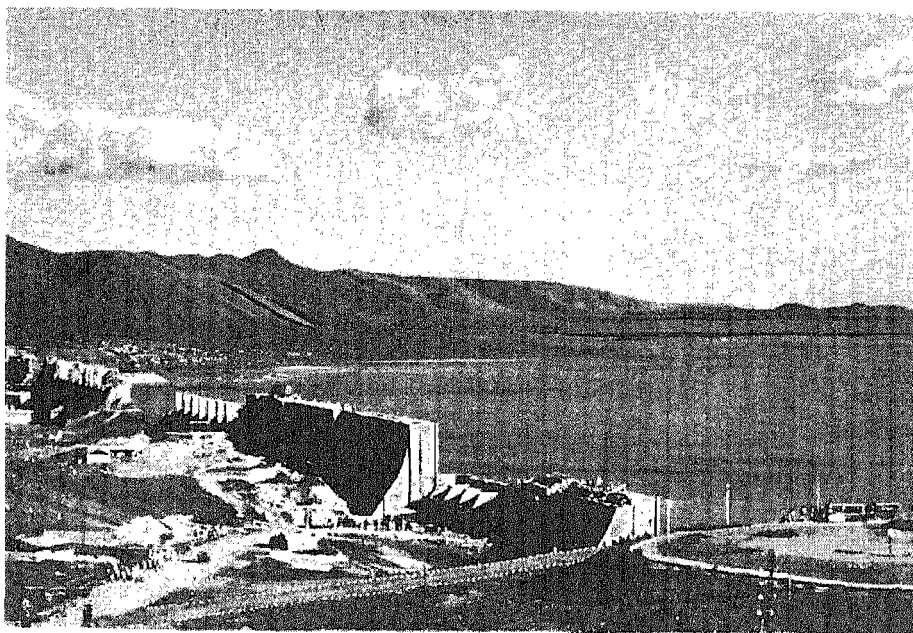


Damodar Valley Project—view of Tilaiya dam

Rs. 7,070 million comprising Rs. 940 million as investments in State enterprises, Rs. 3,830 million as investments in the private sector on expansion, modernization and replacements, Rs. 1,500 million as working capital and Rs. 800 million as current depreciation expenditure not covered by normal income-tax allowances. The outlay on industries by the Central and State Governments is expected to be about Rs. 1,730 million. This amount includes Rs. 500 million provided as an extra lump sum for the development of basic industries and transport, Rs. 270 million provided for cottage and small-scale industries and other items bearing directly on industry, such as mineral development and scientific research.

The industrial plan attaches high

priority to the expansion of iron and steel production. Towards modernization and expansion of units belonging to the main existing producers, the Government has undertaken to provide loans at reasonable rates of interest. The amount of loans thus envisaged will be Rs. 200 million from the Equalization Fund, while a loan of Rs. 31.5 million will be provided by the International Bank. This scheme will be completed in a period of six years ending 1957-58. In addition, a new integrated iron and steel plant is proposed in the public sector in which, apart from direct investment by the Government, participation of indigenous and external capital is envisaged. When the above development programme is implemented, the availability of pig



Tungabhadra dam

iron and steel would be doubled in comparison with the current domestic output. The development plans for industries also provide for an expansion of capacity in respect of the more important producer goods like aluminium, fertilizers, cement and petroleum, and of capital goods like locomotives, diesel engines and textile machinery.

The increases in production by 1955-56 in some of the important industries are expected to be : fertilizers 528,620 tons, pig iron 310,000 tons, finished steel 394,000 tons, cement 2.1 million tons, aluminium 8,300 tons, locomotives 150, and diesel engines 44,500. Among the consumer goods the production of cloth is expected to rise by 1,872 million yards including 900 million yards for the handloom sector, of sugar by 384,000 tons, of salt by 429,000 tons and of

vegetable oils by 182,000 tons. In the case of a number of engineering industries, a change-over from assembly to complete manufacture of products based on indigenously produced components will be a notable advance.

Investments that are expected to be made on heavy electrical plant and other industrial projects out of the extra lump sum provision of Rs. 500 million will not show results in terms of production by 1955-56, but will be the foundation for future development.

The Plan also includes an extensive programme for the growth of village industries covering khadi, coir, oil, matches, leather, hand-made paper, gur and khandsari, palm gur, woollen blankets and bee-keeping industries. The programme for khadi will be financed by a small cess on mill-made

cloth and the oil industry through a small cess on the oil produced by the mills. The establishment of a Khadi and Village Industries Board has been recommended for implementing this programme and fostering village industries, and the drawing up of common production programmes for comparatively large-scale and small-scale industries is also envisaged.

In the programme for transport and communications, over 50 per cent of the total outlay is on the railways. This will be mainly used to meet the enormous arrears of replacement left over from the war and to equip the railways to carry the additional load accruing from the general development in the other sectors of the economy. The sum likely to be available for laying down new lines is comparatively small.

The total provision for road development, both at the Centre and by the States, stands at rather more than Rs. 1,000 million. About a quarter of this will be spent on the development of national highways which will include the construction of 450 miles of new roads and 43 large bridges, and the improvement of 2,200 miles of existing roads. The rest will mainly be spent on State roads so as to increase the mileage of metalled roads by about 3,000 miles. It is also expected that 16,000 to 17,000 miles of village roads will be built through community effort.

The programme for the development of ports under the Plan provides Rs. 120 million for the construction of a new port at Kandla to furnish an outlet for the traffic previously handled by Karachi and Rs. 120 million for the

renovation and modernization of equipment in the existing ports, while Rs. 80 million will be spent on the creation of port facilities for oil refineries.

The Plan also visualizes the expansion of the shipping with a view to securing the country's coastal trade for Indian vessels and ensuring their fuller participation in the overseas trade. To this end, provision has been made for the construction of additional berths in the Visakhapatnam ship-yard which will not only produce about 100,000 G.R.T. for coastal shipping during the five-year period but also help in reducing the cost of construction. A loan of Rs. 64 million has been recommended to enable the shipping companies to acquire additional tonnage for overseas trade.

The capital expenditure on civil aviation is estimated at Rs. 18.5 million for the first two years and Rs. 96.7 million for the succeeding three years. To enable air lines to be run economically, the Commission recommends the merger of the existing companies into a single corporation. The Plan also provides Rs. 500 million for the development of postal, telegraph and telephone communications. The target is to have one post office for every village with a population of 2,000 or more. The extension of telephone facilities in the larger towns is also recommended.

The proposed outlay on social services amounts in all to Rs. 34,000 million, out of which Rs. 1,560 million are for education, Rs. 1,000 million for medical and health services, Rs. 490 million for housing, Rs. 290 million for backward classes, Rs. 70 million for labour and labour welfare, and Rs. 850 million for



People queue up at the B.C.G. centre for receiving B.C.G. vaccination

completing the programmes of rehabilitation for displaced persons.

The bulk of the expenditure on education and health will be incurred by the States. As a result of the education programme, it is estimated that, as compared with 1950-51, the number of pupils going to primary, junior basic, secondary and technical schools will increase during the period of the Plan by 26, 81, 32 and 63 per cent respectively. The expenditure by the Centre will amount to Rs. 390 million, of which about Rs. 200 million will be devoted to basic and social education and a little over Rs. 110 million to scientific and technical education. In the total provision Rs. 40 million are

included to assist voluntary agencies engaged in social welfare.

In the sphere of health, the Centre has a programme of malaria control through the spraying of insecticides. This will be co-ordinated with similar programmes in the States and is expected to give protection to nearly 200 million people against malaria. The Plan also provides for the construction of D.D.T. plants so as to ensure sufficient supplies of D.D.T. at reduced cost. There is also a modest provision for the study of family planning and the dissemination of knowledge on this subject. Expenditure by the States on public health will mainly be devoted to the improvement of water supply and

drainage. The medical programme provides for some increase in medical facilities and in the number of hospitals and dispensaries and for considerable expansion of the training facilities for doctors, nurses, compounders and midwives.

With the introduction of a provident fund scheme for industrial workers in six industries, it has been possible to draw up a programme for the construction of about 1,50,000 houses for industrial workers. In addition, some States have their own housing schemes for low income groups.

As regards the financing of the Plan the total outlay of Rs. 20,690 million is proposed to be met as follows :

	(Million of rupees)
(i) savings from the current revenues of Central and State Governments (including Railways) after meeting non-development expenditure	7,380
(ii) internal loans, small savings, etc., to be raised by the Central and State Governments ..	5,200

(iii) deficit financing against the release of sterling balances	2,900
(iv) external assistance received to date	1,560
(v) further external assistance or in the alternative additional measures of internal taxation and borrowing of larger deficit financing	3,650
Total ..	<u>20,690</u>

A national plan must ultimately be the expression of a basic unity of purpose in the community. It calls for integrity and efficiency in the administration and the whole-hearted co-operation of the people.

The Commission has therefore made a number of recommendations for the improvement of the administration and also taken important preliminary steps to secure public co-operation on a nationwide basis by constituting the Bharat Sevak Samaj and the National Advisory Committee for Public Co-operation.

CHAPTER VI

SCIENTIFIC RESEARCH

Before World War II, no effective measures were taken on a governmental level to harness science for the benefit of industry. A few universities engaged in fundamental research and certain industries had their own research organizations. It was only during the last war, however, that the need for a central research organization was brought home to the authorities. Accordingly, the Government of India constituted the Board of Scientific and Industrial Research in 1940 and set up the Council of Scientific and Industrial Research as an autonomous body in 1942. Some useful work was done under the auspices of these two bodies, especially to meet the requirements of war.

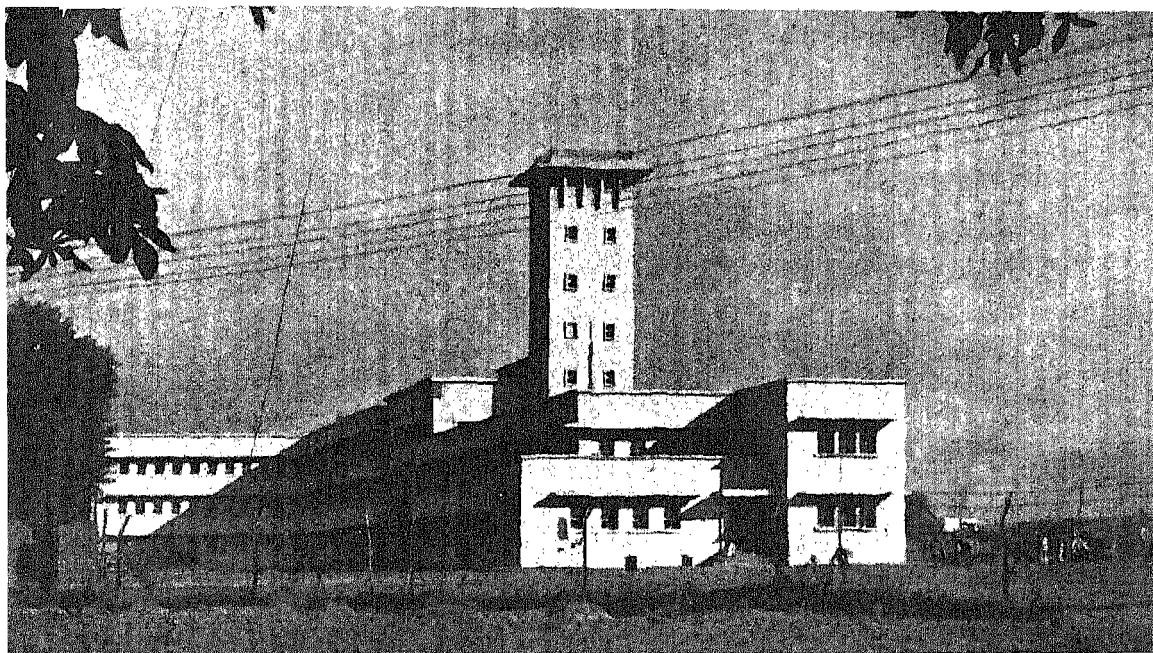
After independence, scientific and industrial research had to be given its due place in the scheme of national affairs. Thus, the Department of Scientific Research was created on June 1, 1948. Indeed, this department became the nucleus of the Ministry of Natural Resources and Scientific Research when the Ministries were reorganized in February 1951.

The construction of a chain of national laboratories and research institutes constitutes the most significant achievement in the sphere of scientific research. The following eleven laboratories have come into operation: (1) the National

Physical Laboratory, New Delhi; (2) the National Chemical Laboratory, Poona; (3) the National Metallurgical Laboratory, Jamshedpur; (4) the Fuel Research Institute, Jealgora, Dhanbad; (5) the Central Food Technological Research Institute, Mysore; (6) the Central Glass and Ceramic Research Institute, Calcutta; (7) the Central Drug Research Institute, Lucknow; (8) the Central Road Research Institute, Delhi; (9) the Central Electro-Chemical Research Institute, Karaikudi; (10) the Central Leather Research Institute, Madras; and (11) the Central Building Research Institute, Roorkee.

In addition, a Central Salt Research Institute at Bhavnagar, a Radio and Electronics Research Institute at Pilani and a Mechanical Engineering Institute at Calcutta are also to be set up. The foundation-stone of the Electronics Institute was laid by the Prime Minister on September 21, 1953. Thus two more Institutes have been left to be completed during the period of the first Five Year Plan.

The National Physical Laboratory in Delhi and the National Chemical Laboratory at Poona deal with general industrial problems and are responsible for investigations relating to industries. The remaining laboratories are specialized institutions dealing with the prob-



The National Physical Laboratory, New Delhi

lems of specific industries. The laboratories undertake fundamental and applied research and examine the existing industrial processes with a view to introducing improved techniques of manufacture and the production of standard materials at reduced costs. At the same time, they seek to evolve new processes and new products preferably from indigenous raw materials and assist in the establishment of new industries in the country. These laboratories would help the small-scale and cottage industries specially.

Most of the laboratories have already undertaken the assessment of the country's resources. They conduct tests and evolve standards, develop useful processes, and give advice to the Government and industry. Laboratory investigations have already been completed

in a number of projects, in particular those regarding the manufacture of calcium diphosphate, nicotine from tobacco waste, citric acid, calcium gluconate, vitamin 'C,' electrolytic production of beryllium oxides, etc. Meanwhile, the work on coal-washing and coal-blending has led to several useful applications. The possibilities of using the Didwana salt cake in the manufacture of certain types of glass have been established, the composition for the manufacture of railway signal glasses has been worked out and investigations for the improvements of the quality of salt have been completed. A study of the structure of bamboo has also revealed the potentiality of bamboo as raw material for the manufacture of newsprint.

Besides these laboratories and re-

search institutions, the Council of Scientific and Industrial Research has made contributions towards several projects of fundamental and applied research in the universities and other institutions. Surveys of particular resources from time to time, arrangements to hold symposiums and conferences and the tendering of advice to industry on specific problems are other items in the programme of scientific and industrial research. The compilation and publication of "Wealth of India," an encyclopaedia of Indian raw materials and industrial products, deserves special mention.

At the same time, "The Journal of Industrial and Scientific Research" contributes to the dissemination of scientific knowledge. Also, the Indian Science Congress, a body of scientists, meets annually to discuss, among other things, problems of scientific research and to evolve a unified course of action.

The Atomic Energy Commission set up in June 1947 has been entrusted with the task of estimating the country's potential resources for the generation of atomic energy and the drawing up of plans for their utilization. The Commission has been sponsoring research in nuclear science and in subjects relating to the development of atomic energy for economic and industrial purposes. These subjects are being worked out in the laboratories of the Commission as well as at other research institutes and university laboratories. The Commission has also trained workers in this field, and teams are under instruction at the Tata Institute of Fundamental

Research in various branches of nuclear physics, instrumentation, high vacuum work, design, etc. The Commission has already set up a unit for the production of radiation meters and other electric instruments to meet the demand for such equipment in geological survey.

The Commission awards substantial grants to research and educational institutions throughout the country and assists them to improve their standard of instruction in mathematics, physics and chemistry. The Tata Institute of Fundamental Research at Bombay, the Bose Research Institute at Calcutta, the Physics Department of the University of Delhi, the Indian Institute of Science at Bangalore, the Department of Physics of Andhra University, the Physical Research Laboratory at Ahmedabad and at Aligarh University are other important centres where research on atomic energy is being done. Good progress has already been made in this field, especially in the study of cosmic rays.

Industrial research in India is sponsored mostly by the Government, for few industrial concerns can afford to maintain independent research institutions. Several prominent industrial concerns have, however, made substantial financial contributions towards the national laboratories. Some industries have also set up their own research institutes. The Ahmedabad Textile Research Association, founded in 1948, a Silk and Art Silk Organization, formed in 1950, and the South Indian Textile Mills Association set up at Coimbatore in 1952, are examples. The Government is

making strenuous efforts to foster the growth of co-operative research and awards substantial grants to the above institutions.

Recently, a number of scientific societies have sprung up in the country and they play an important part in the dissemination of scientific knowledge. The Government gives assistance to the societies. A number of research scholarships have also been instituted by the

Government. Finally, to help the various research institutions in equipping their laboratories, the Government has exempted certain scientific equipment and apparatuses from customs duty.

To fill in the gap between the stages of laboratory experiments and their application on a commercial scale, the Planning Commission has suggested the establishment of a National Research Development Corporation.



The National Flag

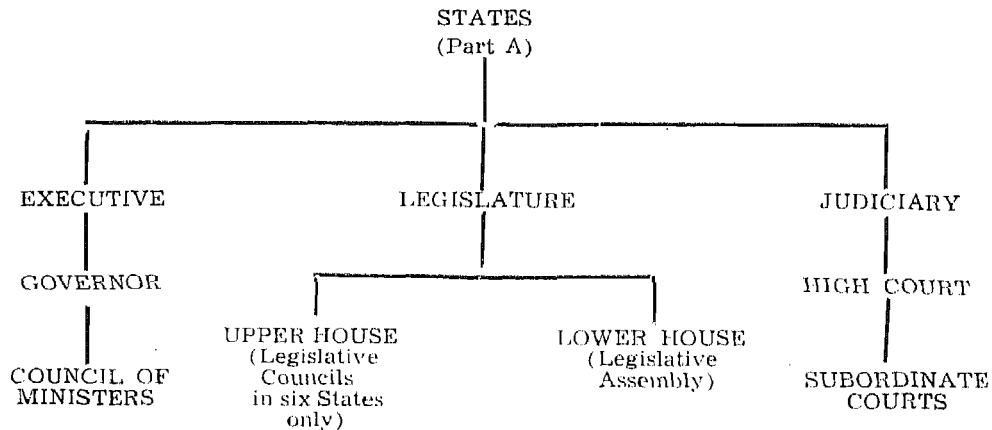
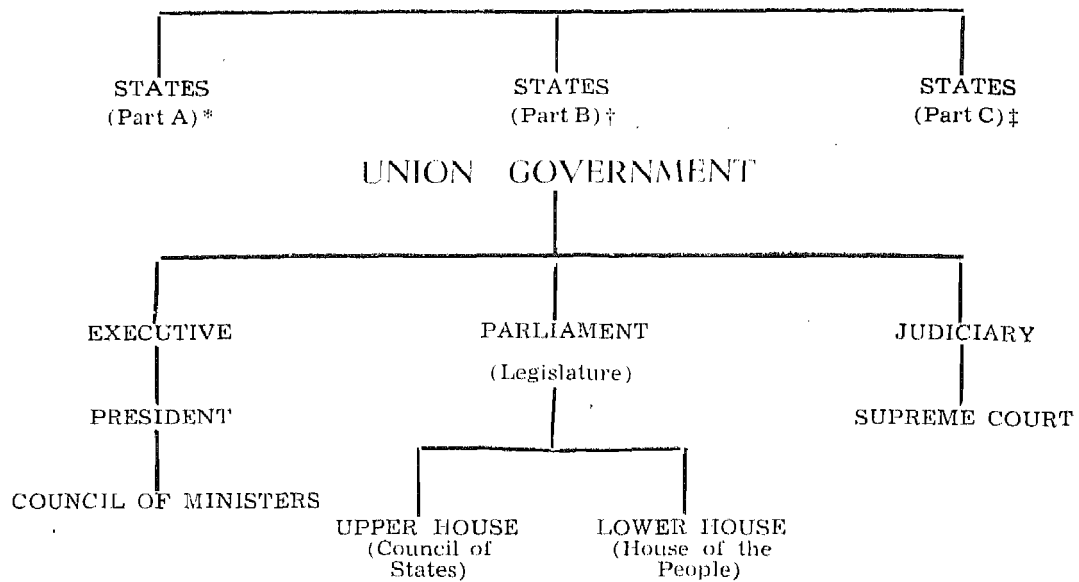
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Notation by Herbert Murrill

ADMINISTRATIVE STRUCTURE

INDIAN UNION

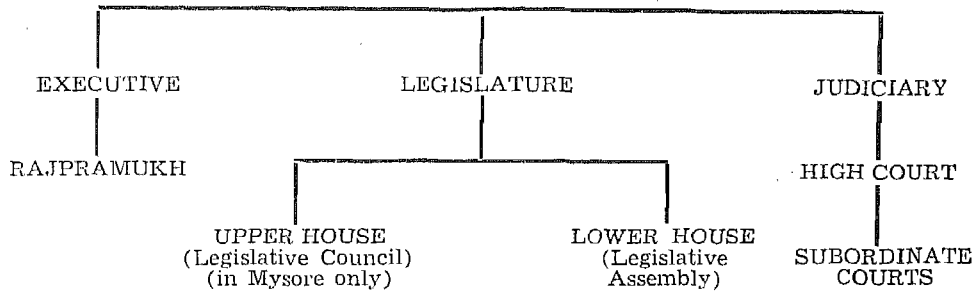


* Old Provinces

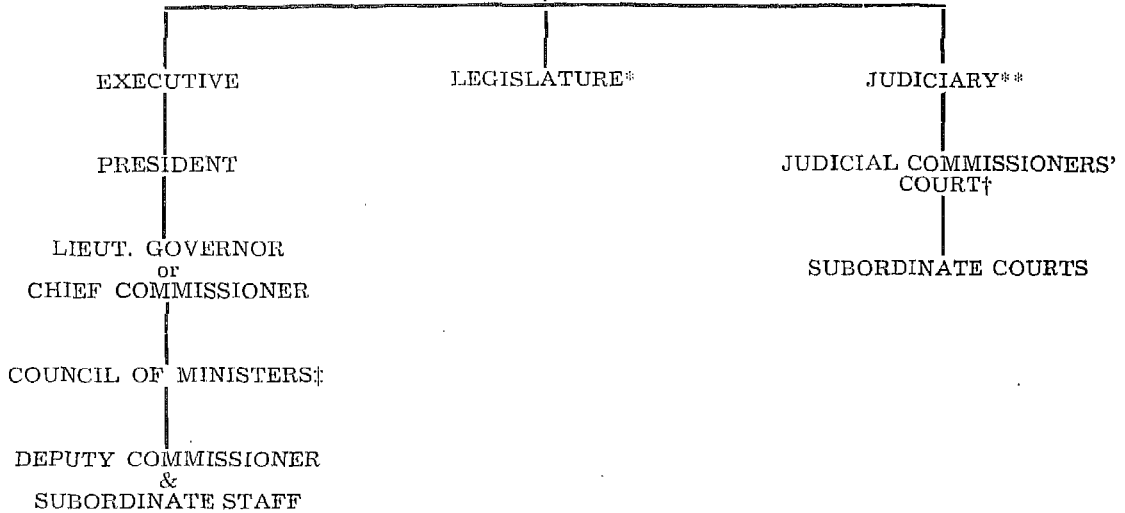
† Three Old States and Five States Unions

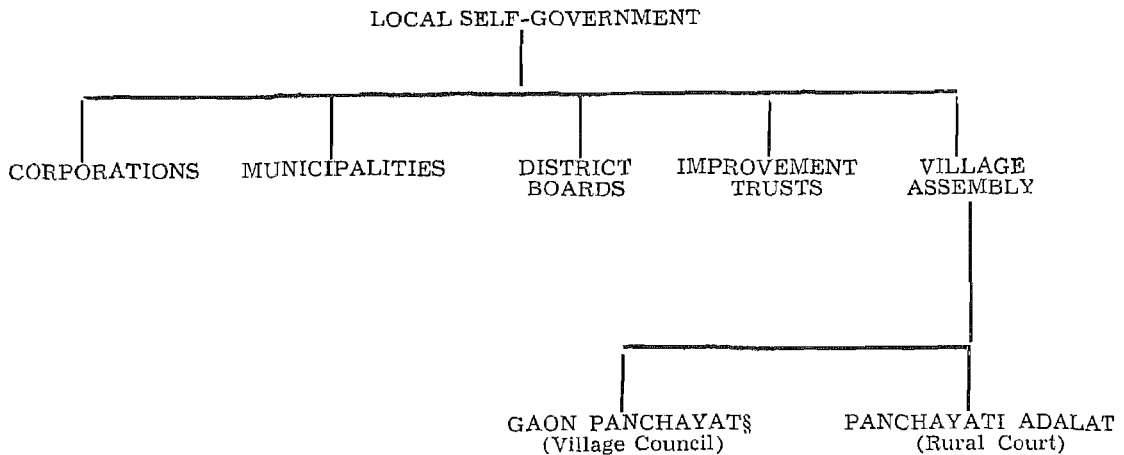
‡ Old Chief Commissioners' Provinces and some centrally administered States and States Unions

STATES=
(Part B)



STATES
(Part C)





= The head of the State in Jammu and Kashmir is called Sadr-i-Riyasat.

* Parliament may create for these States a body, whether nominated, elected or partly elected, to function as a Legislature for the State. By the Government of Part C States Act, 1951, Legislative Assemblies have been set up for all Part C States except Bilaspur, Kutch, Manipur and Tripura.

** Parliament may by law constitute for these States a High Court which will replace the existing Judicial Commissioners' Courts.

‡ Ajmer, Bhopal, Coorg, Delhi, Himachal Pradesh and Vindhya Pradesh have Council of Ministers.

† Delhi has a Circuit Court.

§ The names of Panchayats are different in different States.

APPENDICES

AREA AND POPULATION*			
State	Capital	Land area in square miles	Persons
PART A STATES			
1. ASSAM	Shillong	85,012	9,043,707
2. BIHAR	Patna	70,330	40,225,947
3. BOMBAY	Bombay	111,434	35,956,150
4. MADHYA PRADESH	Nagpur	130,272	21,247,533
5. MADRAS	Madras	127,790	57,016,002
6. ORISSA	Cuttack	60,136	14,645,946
7. PUNJAB	Simla	37,378	12,641,205
8. UTTAR PRADESH	Lucknow	113,409	63,215,742
9. WEST BENGAL	Calcutta	30,775	24,810,308
PART B STATES			
1. HYDERABAD	Hyderabad	82,168	18,655,108
2. JAMMU & KASHMIR	Srinagar	92,780	..
3. MADHYA BHARAT	Gwalior, Indore	46,478	7,954,154
4. MYSORE	Bangalore	29,489	9,074,972
5. P.E.P.S.U.	Patiala	10,078	3,493,685
6. RAJASTHAN	Jaipur	130,207	15,290,797
7. SAURASHTRA	Rajkot	21,451	4,137,359
8. TRAVANCORE-COCHIN	Trivandrum	9,144	9,280,425
PART C STATES			
1. AJMER	Ajmer	2,417	693,372
2. BHOPAL	Bhopal	6,878	836,474
3. BILASPUR	Bilaspur	453	126,099
4. COORG	Mercara	1,586	229,405
5. DELHI	Delhi	578	1,744,072
6. HIMACHAL PRADESH	Simla	10,451	983,367
7. KUTCH	Bhuj	16,724	567,606
8. MANIPUR	Imphal	8,628	577,635
9. TRIPURA	Agartala	4,032	639,029
10. VINDHYA PRADESH	Rewa	23,603	3,574,690
PART D STATES			
1. ANDAMAN & NICOBAR ISLANDS	Port Blair	3,215	30,971
2. SIKKIM	Gangtok	2,744	137,725

POPULATION OF CITIES*			
City	Persons	City	Persons
Bombay	2,839,270	Trivandrum	186,931
Calcutta	2,548,677	Vijayavada	161,198
Madras	1,416,056	Kozhikode	158,724
Delhi†	1,191,104	Tollyganj	149,817
Hyderabad	1,085,722	Bhatpara	134,916
Ahmedabad	788,333	Hubli	129,609
Poona	480,982	Guntur	125,255
Howrah	433,630	Mangalore	117,083
Madurai	361,781	Alleppey	116,278
Sholapur	266,050	Garden-Reach	109,160
Surat	223,182	Visakhapatnam	108,042
Tiruchirapalli	218,921	Vellore	106,024
Baroda	211,407	Rajahmundry	105,276
Salem	202,335	South Suburban (Behala)	104,055
Coimbatore	197,755	Tanjore	100,680

* 1951 Census

† Delhi 914,790
New Delhi 276,314

DEVELOPMENT PROGRAMMES

(Five Year Plan)

		1950-51	1955-56
I—AGRICULTURE			
Foodgrains* (million tons)	..	52.7	61.6
Cotton (lakh bales)	..	29.7	42.2
Jute (lakh bales)	..	33.0	53.9
Sugarcane (million tons)	..	5.6	6.3
Oilseeds (million tons)	..	5.1	5.5
II—IRRIGATION AND POWER			
Major irrigation (million acres)	.. }	50.0	69.7
Minor irrigation (million acres)	.. }		
Electrical energy (installed capacity in million kws.)	..	2.3	3.5
III—INDUSTRY			
Iron and Steel (lakh tons) :			
Pig iron available for foundries	..	3.5	6.6
Finished Steel	..	9.8	13.7
Cement (lakh tons)	..	26.9	48.0
Aluminium (thousand tons)	..	3.7	12.0
Fertilisers (thousand tons) :			
Ammonium sulphate	..	46.3	450.0
Superphosphate	..	55.1	180.0
Locomotives (Nos.)	..	—	170.0
Machine tools (in thousands)	..	1.1	4.6
Petroleum refining :			
Liquid petroleum (million gallons)	..	N.A.	403.0
Bitumen (thousand tons)	..	N.A.	37.5
Cotton manufactures :			
Yarn (million lb.)	..	1,179	1,640
Mill cloth (million yards)	..	3,718	4,700
Handloom (million yards)	..	810	1,700
Jute manufactures (thousand tons)	..	892	1,200
Agricultural machinery :			
(a) Pumps, power-driven (thousands)	..	34.3	85.0
(b) Diesel engines (thousands)	..	5.5	50.0
Bicycles (thousands)	..	101.0	530.0
Power alcohol (million gallons)	..	4.7	18.0
IV—TRANSPORT			
Shipping (tonnage) :			
Coastal (GRT thousands)	..	211.0	315.0
Overseas (GRT thousands)	..	173.5	283.0
Roads :			
National Highways (thousand miles)	..	11.9	12.5
State Roads (thousand miles)	..	17.6	20.6
V—EDUCATION†			
Pupils in :			
Primary schools (millions)	..	15.11	18.79
Junior Basic schools (millions)	..	2.90	5.28
Secondary schools (millions)	..	4.39	5.78
Industrial schools (thousands)	..	14.8	21.8
Other technical and vocational training schools (thousands)	..	26.7	43.6
VI—HEALTH			
Hospitals (beds in thousands)	..	106.5	117.2
Dispensaries (number) :			
Urban	..	1358	1615
Rural	..	5229	5840
VII—DEVELOPMENTAL INSTITUTIONS			
Panchayats (thousands)	..	55.1	69.1
Co-operative societies‡ :			
Credit (thousands)	..	87.8	112.5

Sale and marketing (thousands)	..	14.7	20.7
Multipurpose (thousands)	..	31.5	40.5
Lift irrigation (Nos.)	..	192.0	514.0
Co-operative farming (Nos.)	..	352.0	975.0
Other (thousands)	..	27.3	35.8
Total (thousands)	..	161.9	211.1

*Including gram and pulses. Output in 1949-50 (used as the base for fixing the target for 1955-56) was 54.0 million tons.

†These estimates do not cover (except in respect of industrial schools) Hyderabad, Rajasthan, Ajmer and Vindhya Pradesh. In some cases, data for a few States e.g., Uttar Pradesh in respect of primary schools and Madhya Pradesh in the case of junior basic and secondary schools) are also not covered in these estimates.

‡The estimates here exclude data for Punjab, Orissa, Hyderabad, PEPSU and most of the Part C States.

The production of major producer and capital goods are expected to register increases as shown under :

1. Heavy Chemicals (Sulphuric acid, caustic soda and soda ash)	'000 Tons	156.0
2. Fertilizers (Ammonium Sulphate and superphosphate)	'000 Tons	528.6
3. Iron and Steel (a) Pig Iron (Available for foundries) (b) Steel	'000 Tons	310.0 394.0
4. Aluminium	'000 Tons	8.3
5. Cement	'000 Tons	2,108.0
6. Locomotives	Number	150 (plus 50 boilers)
7. Diesel Engines	Number	
	'000	44.5
8. Power-driven pumps	"	45.7 to 50.7
9. Carding engines	Number	600
10. Spinning Ring-frames	"	440
11. Plain, semi and automatic looms	"	4,100

EXPANSION PROGRAMMES IN CERTAIN MAJOR LINES IN THE PRIVATE SECTOR

	Unit	1950-51		1955-56	
		Rated Capacity	Production	Rated Capacity	Production
(1) Agricultural Machinery :					
(a) Pumps, Power-driven	Number	33,460	34,310	69,400	80,000
(b) Diesel engines	Number	6,320	5,540	39,725	50,000
(2) Aluminium	Tons	4,000	3,677	20,000	12,000
(3) Automobiles (Manufacturing only)	Number	30,000	4,077	30,000	30,000
(4) Bicycles	Thousands	120	99	530	530
(5) Cement	Tons '000	3,194	2,692	5,016	4,550
(6) Electric Transformers	KV '000	370	179	485	450
(7) Fertilizer :					
(i) Ammonium sulphate	Tons	78,670	46,528	131,270	120,000
(ii) Superphosphate	Tons	123,460	55,089	192,855	164,000
(8) Glass Industry :					
Sheet glass	Tons	11,700	5,850	52,200	26,000
(9) Heavy Chemicals :					
(i) Caustic Soda	Tons '000	19	11	37	33
(ii) Soda Ash	Tons '000	54	45	86	78
(iii) Sulphuric acid	Tons '000	150	99	213	192

(10) Iron and Steel :					
(i) Pig Iron	Tons '000	1,850	1,572	2,700	1,950
(ii) Steel (Main Producers)	Tons '000	975	976	1,550	1,280
(11) Paper and Board	Tons '000	137	114	198	188
(12) Petroleum Refining :					
(i) Liquid Petroleum Products	Million N.A. Million Gals.	N.A. N.A.	N.A. N.A.	N.A. N.A.	403 403
(ii) Bitumen	Tons	N.A.	N.A.	N.A.	37,500
(13) Power Alcohol	Million Gals.	13	5	21	18
(14) Locomotives	Number	..	..	50	50
(15) Rayon :					
(i) Rayon filament	Million Lb.	4	..	18	18
(ii) Staple fibre	Bales '000	..	..	28	28

NET OUTPUT PER ENGAGED PERSON IN THE INDIAN UNION (1948-49)*

Items	Net output (Rs. abja †)	Number of engaged persons (lakhs) ‡	Net output per engaged person (thousand of rupees)
(1)	(2)	(3)	(4)
1. Agriculture	41.5	905	0.5
2. Mining and factory establishments	6.4	38	1.7
3. Small enterprises	8.6	149	0.6
4. Total of mining, manufacturing and hand-trades	15.0	137	0.8
5. Railways and communications	2.3	12	1.9
6. Banking, insurance and other commerce and transport	14.7	95	1.5
7. Total of commerce, transport and communications	17.0	107	1.6
8. Professions and liberal arts	3.2	50	0.6
9. Government services (administration)	4.6	36	1.3
10. Domestic service	1.5	42	0.4
11. House property	4.5	..	..
12. Total of other services	13.8	128	1.1
13. Net domestic product at factor cost	87.3	1,327	0.66

*Table 4, First Report of the National Income Committee, April 1951, p. 31.

† abja = 100 crores = 1 milliard = 1 U.S. billion = 10⁹. Also, lakh = 100,000.

Rs. abja = 75 million pounds sterling = 210 million U.S. dollars.

RAILWAYS			
Name	Headquarters	Route mileage	Date of inauguration
(i) <i>Southern Railway</i>	Madras	6,017	14-4-1951
(ii) <i>Western Railway</i>	Bombay	5,631	5-11-1951
(iii) <i>Central Railway</i>	Bombay	5,428	5-11-1951
(iv) <i>Northern Railway</i>	Delhi	6,007	14-4-1952
(v) <i>North Eastern Railway</i>	Gorakhpur	4,787	14-4-1952
(vi) <i>Eastern Railway</i>	Calcutta	5,667	14-4-1952
Total Mileage*		33,537†	

* Up to April 14, 1952.

† Present route mileage of Indian Railways is about 34,120.

MAJOR PORTS

Calcutta	Cochin
Bombay	Visakhapatnam
Madras	Kandla

Scattered along her coastline, India has also over two hundred minor ports of varying capacity.

41615
~*~

AERODROMES

I—INTERNATIONAL AERODROMES		37. Vijayawada
1. Bombay (Santa Cruz)		38. Visakhapatnam
2. Calcutta (Dum Dum)		
3. Delhi Airport (Palam)		
II—MAJOR AERODROMES		IV—MINOR AERODROMES
4. Agartala		39. Akola
5. Ahmedabad		40. Asansol
6. Begumpet		41. Aurangabad
7. Bombay (Juhu)		42. Bareilly
8. Delhi (Safdarjung)		43. Belonia
9. Gauhati		44. Bilaspur
10. Madras (St. Thomas Mount)		45. Chakulia
11. Nagpur		46. Cuddappah
		47. Donakonda
		48. Gorakhpur (Kusmi)
III—INTERMEDIATE AERODROMES		49. Jhansi
12. Allahabad		50. Jharsuguda
13. Amritsar		51. Jubbulpore
14. Baghdogra		52. Kailashahar
15. Banaras		53. Kamalpur
16. Baroda		54. Kanpur (Civil)
17. Barrackpore		55. Khandwa
18. Bhavnagar		56. Khowai
19. Bhopal		57. Kohlapur
20. Bhu]		58. Kotah
21. Coimbatore		59. Lalitpur
22. Cuttack (Bhubaneswar)		60. Madura
23. Gaya		61. Manipur Road
24. Indore		62. Mysore
25. Jaipore		63. North Lakhimpur
26. Jorhat		64. Palanpur (Dessa)
27. Junagadh (Keshod)		65. Passighat
28. Lucknow (Amausi)		66. Raipur
29. Mangalore		67. Rajahmundry
30. Mohanbari		68. Ramnad
31. Patna		69. Ranchi
32. Porbandar		70. Sadiya
33. Rajkot		71. Saharanpur
34. Tiruchirapalli		72. Shella
35. Trivandrum		73. Sholapur
36. Tezpur		74. Tanjore
		75. Udapur
		76. Vellore
		77. Warrangal

TRANSPORT AND COMMUNICATIONS

ROADS

India has 118,000 miles of all-weather highways excluding roads which form parts of towns. They are classified as national highways, State highways, major district roads and village roads.

The country has approximately 310,000 motor vehicles, comprising 150,000 private cars, 10,000 taxies, 38,000 passenger vehicles, 75,000 goods vehicles, 28,000 motor cycles, and 9,000 miscellaneous vehicles. The number of bullock carts is roughly estimated at ten millions.

WATERWAYS

The length of the waterways in India navigable by steamers and country crafts is estimated at 4,000 miles.

COMMUNICATIONS*

Post Offices—Rural	..	36,501
Post Offices—Urban	..	5,583
Telegraph Offices	..	8,240
Telephone Exchanges (including P.B.X's)	..	4,255
Public Call Offices	..	1,477
Telephone connections	..	184,500

During 1952, nine Indian air transport companies operated scheduled air services on various routes within and beyond the frontiers of India. Non-Scheduled services were operated by 16 companies, including the nine engaged on Scheduled services. The Air Transport industry is being nationalized in India.

SHIPPING

The Indian-owned and registered tonnage at the end of 1952 was 4,52,274 GRT.

* On March 31, 1951.

NATIONAL LABORATORIES AND RESEARCH INSTITUTES

A

1. National Physical Laboratory of India, Hillside Road, New Delhi
2. National Chemical Laboratory of India, Ganeshkund, Poona-7
3. National Metallurgical Laboratory, P.O. Burma Mines, Tatanagar, Jamshedpur
4. Fuel Research Institute, Digwadih, Jealgora P.O., Manbhum Dist., Bihar
5. Central Glass and Ceramic Research Institute, P.O. Jadavpur College, Calcutta-32
6. Central Road Research Institute, Delhi-Mathura Road, P.O. Okhla, Delhi
7. Building Research Institute, Roorkee, (U.P.)
8. Central Leather Research Institute, A.C. College, (construction on way) of Technology Buildings, Guindy, Saidapet, Madras-15
9. Central Drug Research Institute, Chattar Manzil Palace, Lucknow
10. Central Food Technological Research Institute, Cheluvamba Mansion, Mysore
11. Central Electro-Chemical Research Institute, (C.S.I.R.), Kadva Road, Sekkalai, P.O. Karaikudi, S.I. Rly. Chittaranjan Avenue, Calcutta

B

1. Central Research Institute, Kasauli (Simla Hills)
2. Drugs Research Laboratory, Jammu Tawi, Kashmir
3. Pasteur Institute, Patna
4. Pasteur Institute, Shillong
5. Malaria Institute of India, Delhi
6. Indian Council of Medical Research, P-Block, Raisina Road, New Delhi
7. Nutrition Research Laboratories, Coonor (S. India)
8. Indian Institute for Medical Research, 27, Princes Street, Calcutta-13
9. Tata Memorial Hospital, Hospital Avenue, Parel, Bombay
10. School of Tropical Medicine, 110, Chittaranjan Avenue, Calcutta
11. All-India Institute of Hygiene and Public Health, 110, Chittaranjan Avenue, Calcutta

12. Haffkine Institute, Parel, Bombay
13. King Institute, Guindy, Madras
14. Indian Central Cotton Committee, Technological Laboratory, Matunga, Bombay
15. Central Sericulture Research Station, Berhampore (W. Bengal)
16. Indian Dairy Research Institute, Hosur Road, Bangalore
17. Indian Agricultural Research Institute, Pusa, New Delhi
18. Agricultural College and Research Institute, Coimbatore
19. Allahabad Agricultural Institute, P.O. Agricultural Institute, Allahabad
20. Central Coconut Research Station, Kayangulam
21. Indian Veterinary Research Institute, Mukteswar and Kumaon, (U.P.)
22. Indian Institute of Sugar Technology, Kanpur
23. Central Rice Research Institute, Cuttack, Orissa
24. Indian Lac Research Institute, P.O. Namkum, Ranchi, Bihar
25. Forest Research Laboratory, Malleswaram, Bangalore
26. Forest Research Institute and College, P.O. New Forest, Dehra Dun
27. Institute of Science, Mayo Road, Fort, Bombay
28. Bose Research Institute, 93/1, Upper Circular Road, Calcutta
29. Indian Institute of Science, Bangalore-3
30. Central Research Institute, Trivandrum, South India
31. Central Waterpower, Irrigation and Navigation Research Station, Poona
32. River Research Institute, Anderson House, Calcutta, W. Bengal
33. Tata Institute of Fundamental Research, Apollo Pier Road, Bombay-1
34. Central Laboratories for Scientific and Industrial Research, Hyderabad (Deccan)
35. Physical Research Laboratory, Navrangpura, Ahmedabad-9
36. Indian Association for the Cultivation of Sciences, Bow Bazar Street, Calcutta
37. Birbal Sahni Institute of Palaeobotany, Lucknow

DISTANCE BETWEEN DELHI AND THE PRINCIPAL CITIES (Railway Mileage)

1. Calcutta	902 miles	13. Dehra Dun	210 miles
2. Bombay	861 "	14. Jhansi	256 "
3. Madras	1,361 "	15. Ajmer	235 "
4. Ahmedabad	539 "	16. Jaipur	180 "
5. Amritsar	278 "	17. Gwalior	195 "
6. Ambala Cantt.	123 "	18. Shillong	1,094 "
7. Simla	440 "	19. Nagpur	679 "
8. Lucknow	303 "	20. Cuttack	1,116 "
9. Banaras	473 "	21. Patna Jn.	616 "
10. Allahabad	391 "	22. Patna City	622 "
11. Kanpur	273 "	23. Hyderabad	1,044 "
12. Agra Fort	143 "	24. Bhopal	437 "
		25. Jullundur	226 "

EXPENDITURE ON EDUCATION IN INDIA*

1950-51

Item (1)	From Government Funds		From Local Board Funds		From Fees		From Other Sources		Total
	(2)	Rs.	(3)	Rs.	(4)	Rs.	(5)	Rs.	
Indirect Expenditure	14,77,82,650	..	1,38,96,750	..	1,70,98,524	..	4,73,71,492	22,61,49,316
Direct Expenditure :									
Primary Schools	25,32,94,856	..	9,11,31,585	..	91,39,759	..	1,59,36,472	36,95,02,672
Secondary Schools	12,01,29,415	..	1,79,73,318	..	13,30,41,455	..	3,07,42,540	30,18,86,428
Vocational and Special Education Schools	4,16,32,622	..	12,99,077	..	48,21,187	..	1,45,05,097	6,22,57,983
Arts and Science Colleges	4,75,59,975	..	1,85,799	..	5,17,92,182	..	1,30,98,879	11,86,36,835
Professional and Special Education Colleges	2,94,15,340	..	2,83,900	..	84,25,963	..	31,62,836	4,16,26,239
Total (Direct)	49,20,32,208	..	11,08,72,679	..	20,72,20,546	..	8,39,84,724	89,41,40,157
Total (Direct and Indirect)	63,98,14,758	..	12,47,69,429	..	22,43,19,070	..	13,13,56,216	1,12,02,59,473

* Excludes the State of Jammu and Kashmir as figures for the same are not available.

NUMBER OF INSTITUTIONS AND PUPILS IN INDIA*

1950-51

Item	Number of Institutions		All Persons		NUMBER OF PUPILS		Males		Females			
	Total		Total		Total		Total		Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
			In Urban Areas	In Rural Areas	From Urban Areas	From Rural Areas		From Urban Areas	From Rural Areas		From Urban Areas	From Rural Areas
Primary Schools	2,09,303	34,315	1,74,988	1,83,27,263	41,50,928	1,41,76,335	1,31,80,319	19,01,720	1,12,78,599	51,46,944	22,49,208	28,97,736
Secondary Schools	20,767	7,889	12,868	32,01,907	28,75,046	25,26,861	42,62,720	19,85,265	22,77,455	9,39,187	6,89,761	2,49,406
Vocational and Special Educational Schools	49,343	12,397	36,946	13,48,799	2,94,033	10,54,766	11,40,358	2,31,344	9,09,014	2,08,441	62,680	1,45,752
Arts & Science Colleges	506	473	33	3,19,303	2,38,837	80,466	2,61,000	2,05,036	75,964	38,255	33,753	4,502
Professional and Special Educational Colleges	209	274	25	58,068	40,330	17,738	52,387	35,942	16,945	5,229	4,436	793
Total	2,80,218	55,358	2,24,860	2,52,55,340	73,99,174	1,78,56,166	1,89,17,284	43,59,307	1,45,57,977	63,38,056	30,39,867	32,98,189

*Exclusive of the State of Jammu and Kashmir as statistics for the same are not available.

LABOUR

Today India's labour force is distributed among the various occupations as follows :

Factories	..	29,50,000
Railways	..	14,00,000
Plantations	..	12,00,000
Mines	..	5,00,000
Central Public Works Deptt.	..	2,00,000
Posts and Telegraphs	..	2,00,000
Major Ports	..	50,000

COINAGE, WEIGHTS AND MEASURES

COINAGE—RUPEE IN POUNDS AND DOLLARS

Rs. 100 =	£7 9s. 6d. or \$21
Re. 1 =	1s. 6d. or 21 cents
Rs. 1,000 =	£74 14s. 10d. or \$210
Rs. 1,00,000 (one lakh) =	£7,473 19s. 2d. or \$21,000
Rs. 10,00,000 (ten lakhs) =	£74,739 11s. 8d. or \$210,000
Rs. 1,00,00,000 (one crore) =	£747,395 16s. 8d. or \$2,100,000

WEIGHTS AND MEASURES

A maund is 82.28 lb., a seer is 2.05 lb. and a tola is 180 grams troy. There are local variations of these weights. The British weights and measures are also used.

NUMERICAL DESIGNATIONS

A hundred thousand is normally called a "lakh" and written as 1,00,000 while ten million is a "crore" and written as 1,00,00,000 (note the placing of commas).

RELIGIONS OF INDIA

All the main religions of the world are represented in India. With its 240 million followers, Hinduism is the predominant religion. It is not a well-defined creed, but a way of life, a fellowship of faiths. With the settlement of the Aryans in northern India, it originated as a simple form of nature worship, and gradually spread to the rest of the country, drawing into its fold local cults, gods, goddesses, diverse beliefs and modes of worship. Hinduism has an enormous mass of literature of which the Vedas are the earliest. Philosophical Hinduism believes in the oneness of the Supreme Soul, the Brahmin, of which individual souls are but differing manifestations. The individual soul ultimately merges into the universal soul. It has, however, to work out its destiny, its *Karma*, by passing through a series of births. According to his status in life a man must perform his special duties. Hinduism thus lays emphasis on action.

Buddhism arose in India in the sixth century B.C. as a revolt against the prevailing ritualism of Hinduism. Its founder, Gautama

Buddha, was a prince born in what is now known as the State of Bihar. Oppressed by the spiritual confusion and moral degeneration of his time, he renounced his kingdom and practised austerities. After the attainment of enlightenment he began preaching the *dharma*.

The essence of the Buddha's teaching, as epitomized in the four Noble Truths and Eightfold Path, lies in the ethical ideal of religion as opposed to the meaningless ritualism and superstitions which were prevalent at that time. He exhorted his followers to practise truthfulness and charity, to eschew greed and violence. Under the patronage of Emperors Asoka and Kanishka, Buddhism spread to Ceylon, Burma, Tibet, Siam, Indo-China and Central Asia. In the land of its birth, however, it well-nigh disappeared. The Buddhist population in India is at present just over a hundred thousand.

Jainism also started as a reformed sect of Hinduism. Lord Mahavira's name is prominently associated with it, although he was probably "more of a reformer of an existing religion and possibly of a church than the founder of a new faith". Mahavira was a contemporary of the Buddha and like him a royal prince of Bihar. Lord Mahavira taught that salvation lay in righteous thought and deed. All living things had soul, and it was a sin to harm them. Among the holy places of the Jains are Mount Abu, Girnar, Parasnath, Satrunjaya and Pava-puri with their exquisite temples. Jainism has one and a half million followers living mostly in the cities.

Sikhism too is an offshoot of Hinduism. It was founded by Guru Nanak who was born in the Punjab in 1469. He was repelled by the formalism of the Hindu and Muslim sects and the superstitions in which both were sunk. Undaunted by consequences, he boldly criticized the practices of both the Hindus and the Muslims and preached a religion of sincere devotion and practical life. His teachings are contained in the *Gur Granth Sahib*, the holy book of the Sikhs, i.e., the disciples. The peaceful Sikh community began to be militarized under Guru Hargovind, the 6th Guru, and were finally organized by the tenth and last Guru, Govind Singh.

To this day, most Sikhs wear distinctive symbols, such as long hair and a dagger, which were enjoined by the last Guru. Meat is permitted to the Sikhs, but the use of tobacco and other narcotics is strictly forbidden. There are nearly four and a half million Sikhs in India.

Among the religions that came to India

from abroad, Islam has the largest following. It was first introduced in India in the seventh century A.D. by Arab merchants. But it spread more widely after the conquest of the country by the Turko-Afghans in the 12th century A.D. The fundamental tenets and practices of Islam in India as elsewhere are the belief in the oneness of God, five daily prayers, pilgrimage to Mecca (haj), charity and fasting. Like their co-religionists in other countries, 43 million Muslims in India are divided into two main sects: the *Shias* and the *Sunnis*. The majority of the Indian Muslims are Sunnis while Shias predominate in certain localities.

Another important religion which came to India from abroad is Christianity which now claims five and a half million adherents. There are two main groups of Christians: the Syrian Christians, who trace their descent

from converts in the first centuries of the Christian era, and the other Christians who were converted much later by the missionaries who came to India from the Western countries.

The Zoroastrian religion is represented by 110,000 Parsees who worship Ahura Mazda, the creator. Most of them live in Bombay. Their ancestors came to India from Persia in the eighth century.

India has always been noted for religious tolerance. For thousands of years various religions have existed in India side by side, and exercised a mutually beneficial influence upon one another. Continuing the spirit of the past traditions, the new constitution of India permits every citizen the fullest freedom to profess, practise and propagate by all peaceful means the religion of his choice.

INDIAN ART

through the ages

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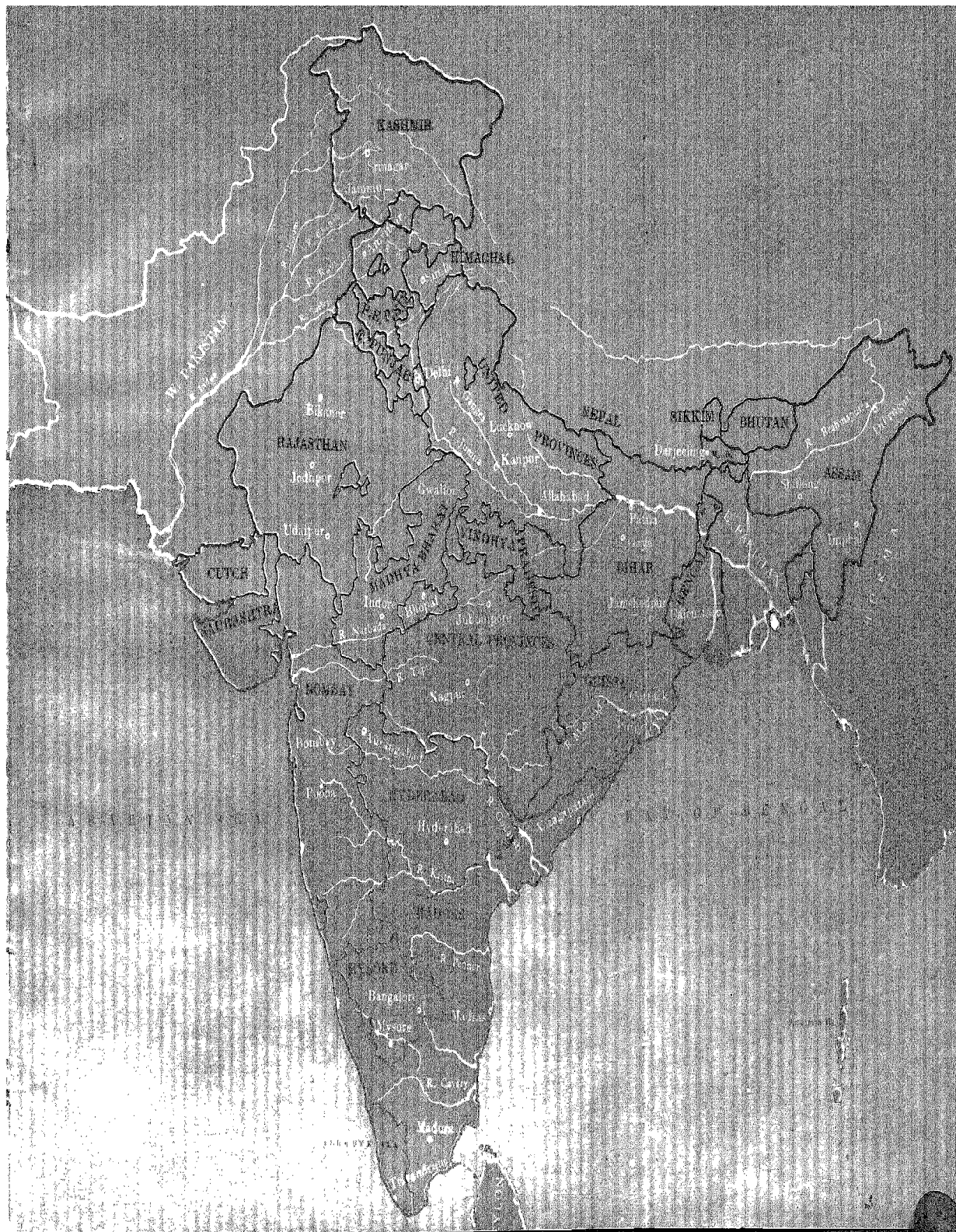
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